Observations
ON THE
NATURE OF CANCER.

BY THE LATE JOHN MARSHALL, F.R.S., F.R.C.S.,
PRESIDENT OF THE GENERAL MEDICAL COUNCIL; EMERITUS PROFESSOR OF SURGERY IN UNIVERSITY COLLEGE; CONSULTING SURGEON TO UNIVERSITY COLLEGE HOSPITAL.

THE late Mr. Marshall proposed to devote the following pages to the elucidation and amplification of certain statements and views which could only be but briefly expounded in an extempore lecture[1] of one hour's duration. In the present posthumous lecture he has, furthermore, dealt briefly with several questions relating to cancer which were altogether passed by in that lecture.

1. *Definitions and nomenclature.*—The confusion begotten of the threefold use of the term "cancer," sometimes to define a *class*, sometimes a *genus*, and sometimes a species of tumours, or even in two or three of these senses, or at all events in a general and a special sense in the same page, is much to be regretted; but it is perhaps hopeless to attempt to rid ourselves of it for the present. A trace of such confusion lurks in the title of this lecture and of its two predecessors; for it is only by regarding the term "cancer" in one sense and the term "cancerous diseases" in another sense that the two terms become logically discreet, and subject to the copula "and." Otherwise the combination is not merely tautological, but illogical; for a "cancer" must be a "cancerous disease," and a "cancerous disease" must be "cancer." It might be well if, although as physicians and surgeons we are wholly unable to exclude the word "cancer" from our vocabulary, we could, under the guidance of the pathologist, more strictly limit its use. In practice, from kindly motives, the word "sarcoma" is frequently employed, when it is legitimate to do so, as a verbal mitigation of the more dreaded term. Doubtless, in ancient medicine and surgery, the earliest application of the term "cancer" was especially or chiefly to those forms of spreading and ulcerating growths which are typified by the hard, and hence so-called "scirrhus," tumours; but it was also applicable, and was probably used, in regard to the softer and rarer forms of ulcerated new growths, later distinguished as encephaloid tumours; and, furthermore, it was doubtless employed in relation to the worst forms of progressively *eroding* cutaneous ulcers. But the term "cancer" undoubtedly came also to be used in relation to the larger forms of those tumours which are now designated "sarcomas," especially to those which are prone to ulcerate or slough, or have actually undergone those morbid changes. This is abundantly manifest by the descriptions and illustrations contained in theses and systematic works dating from the period of the revival of learning down to the present day. Notwithstanding the precise differentiation now established on anatomical grounds between these several tumours, their general characteristics, pathological significance, and behaviour serve sufficiently to unite them under the one term of "invading or infecting tumours" But, it appears to me, a likeness or unlikeness in structure affords a more definite basis of a sound classification and just nomenclature than any resemblance or difference in their modes of *life*, propagation, or decay. The use of the term "true cancer," now sanctioned as a mode of distinction between the two chief and well-recognised divisions of these invading growths, is convenient, but unsatisfactory; for, again, a "cancer" is a "true cancer," and a "true cancer" is a "cancer." Moreover, no one dreams of seriously employing the complementary opposite, "false cancer." For my own part, I cannot bring myself to designate any sarcoma which is derived from non-glandular tissue elements as a cancer. I prefer to adopt the subdivision of these "*invading tumours*" into two leading groups; (*A*) the *theliomas* and (*B*) the *sarcomas*, according as they are derived from the "covering or lining" constituents, or from the "substantial framework" constituents, of the body.

A. Theliomas, whatever may be their site or basis of origin in the body, are "cancers." They originate in or from parts of the body which are descended from one or other of the three so called embryonic layers of the blastoderm—viz., the *epi-*, the *meso-*, or the *hypo* blastic layers, and are either (*a*) *epi*theliomas, (*b*) *meso*theliomas, or (*c*) *hypo*theliomas. The epitheliomas (*a*) and the hypotheliomas (*c*) either affect mere plain membranes or surfaces, thus producing flat masses—the so-called plaques; or they affect the elevations or projections of a cutaneous or mucous surface, and so give rise to *warts*, or *papillomas;* or they affect the minute involutions of those surfaces, such as simple or compound open follicles, branched or contorted tubules, or small racemose glands, whether these belong to the skin or to the mucous membranes; or, lastly, they affect smaller or larger portions (never the whole) of the lobulated glands, such as the mammary gland, the salivary glands, the pancreas, the liver, the lungs, the testis, or the ovary, thus giving rise in these situations to more manifest and often very large tumours. In the case of the larger glands, and probably in smaller ones, the cancerous disposition may primarily affect the epithelium of the ducts or that of the acini of the gland, and thus either *duct cancers* or proper *gland cancers* arise. If the acini only are involved, an *adenoid cancer* is developed, which, indeed, constitutes a potentially, if not an actually invading *adenoma*. Lastly, the closed glands, such as the tonsillar and thyroid bodies and Peyer's patches, are liable to theliomatous disease. *Mesotheliomas* (*b*), which as *primary* formations are rare, are represented by such theliomatous growths as can be distinctly shown to originate in sites acknowledged to be within the area of those parts of the body which are derived directly from the mesoblastic embryonic layer—such, for example, as any well-established cases of primary thelioma of the peri- and endo-cardium and the lining membrane of the bloodvessels, that of the lymphatic vessels and glands, and of the synovial membrane. These tumours must of course always be distinguished from deep-seated *secondary* growths, the products of invasion of an original *epi-* or *hypo*-thelioma. I believe there exists in every form of "thelioma," however minute, a substratum of modified basal tissue, not necessarily a distinct basal membrane which, as it seems to me, may probably be descended from the substance of the corresponding embryonic layer, whether epi-, hypo-, or meso-blastic; but the subject demands further investigation. I have long ago felt assured, from microscopic observations, that in every form of epithelioma and hypothelioma this modified basal tissue exists. It is obviously present in an elevated cancerous patch of skin or mucous membrane. It distorts a papilloma; it forms a loose and delicate stroma in soft gland, like the liver; and in an encephaloid growth it constitutes the firm and stubborn stroma of a scirrhous tumour; and it may even form a chondroid or osteoid framework in an originally theliomatous growth. The variety of invading new growths, known as *colloid cancers*, whether derived from epiblastic, hypoblastic, or mesoblastic tissues, are colloid theliomas, having very special characters both as regards their peculiar cell elements and their interwoven stroma. In this respect they depart from the theliomas generally, in which, as a positive rule, the diseased and distorted individual cell elements maintain a general likeness to those of the healthy tissue in, upon, and from which they immediately spring.

B. The other group of invading tumours, the *sarcomas*, which originate in and from tissues which are especially derived from the mesoblastic embryonic layer, follow quite naturally the several varieties of those tissues. Such, for example, are the soft myxomas or mucoid tissue tumours, the round celled, spindle-celled, and fibroplastic growths or fibromas, the myomas or muscle tumours, the soft and hard chondromas, the lipomas, myelomas, and the open and compact osteomas. As is well known, two or more of these varieties of sarcomatous tissue frequently exist intermixed in the same growth—an incident referable doubtless to their community of origin and type. Those interesting lower forms of tumour which consist of elements smaller and more single than of the proper tissues—such as tuberculous, gummatous, and inflammatory deposits—are necessarily excluded from special consideration here. Besides this, however, there are found occasionally mixed thelio-sarcomas—that is, tumours in which some portions have a theliomatous and other portions a sarcomatous structure, or in which these two forms of morbid tissue are in places closely and intimately blended. Seeing that the body itself is so composite an organism, and is descended from all three of the embryonic layers, the occurrence of these (*A plus B*) compound growths need not excite surprise. The primary separation of the germinating membrane of the ovum, whether into two, as ectoderm and endo-

[1] The Morton Lecture on Cancer and Cancerous Diseases, delivered at the Royal College of Surgeons of England on Nov. 18th, 1889.

derm, or into three, as epiblast, mesoblast, and hypoblast, is doubtless of the highest consequence and most essential character. A twofold division is, indeed, a mechanical necessity for any mucous membrane, and is naturally suitable for the foundation of a hollow organism; whilst a third, or mesial stratum, seems almost equally an unavoidable material consequence. But these necessary dispositions are not less wonderful on account of their simplicity; whilst such early, if not actually primal, arrangements would seem to have an obvious fundamental character and force, and to imply a kind of future controlling or hierarchical office and duty. From this point forward each lamina tends to *breed true* and *keep true*, and the distinction between them as to their constituents and functions respectively is henceforth maintained, and not easily, perhaps never actually, to be broken through. Within each layer the most complicated and yet definite, metamorphic, metabolic, and synthetic tendencies and processes are manifested and realised, but in each these are distinctly and regularly restricted. Definite evolution within them individually is the law for each; whilst the notion that a cross interference occurs, whether effected in a direct manner by simple metamorphosis of the tissue elements or by a process of previous reversion to a common and primitive uniformity of type and office, is difficult of acceptance, somewhat improbable, and at all events not proved; nor has it been actually shown that it is from hidden *archaic protoblastic* elements that the requisite varieties of forms are produced in late adult life. Certain elementary epithelial or hypothelial protoblasts may, indeed, be supposed to shape themselves, if needful, into spherical, oval, squamous, polyhedral, columnar, or even ciliated forms; and, indeed, transitional forms of epi- and hypo-thelium are well known, and even occasional transmutations of form have been observed. A parallel instance of transmutation is to be seen in the flattening down and disappearance of cilia where the tracheal mucous membrane in the new-born kitten becomes subject to friction opposite the overlapping cartilages of the windpipe after respiration has been established. In the case of certain theliomas of primary origin, developed on the confines of the epiblastic and the hypoblastic regions of the body, the elementary constituents, though diseased and disfigured, still obey the particular type of the healthy tissue from which they have sprung, and, although conterminous, it must not here be concluded that the one kind of thelial element has been changed by contact, influence, or interactionary metamorphic power exercised upon it by the other. The hypothesis of the action of special antecedently existing *germinal* or *seminal* influence or force, giving rise to these transmutations, is needless to account for them, and in regard to any assumed transmutation of a mesoblastic elementary particle into a resemblance or copy of an epiblastic or hypoblastic element, the cure involves a still more difficult assumption. The further supposition that this effect is possible, either by a preliminary reversionary process, or by an undoing of the metamorphic process, is pure speculation. Direct observation is at fault. Mere deformation of neighbouring types of form, together with close contiguity or intermixture with lower ones, may account for appearances which might be attributed to subtle metamorphic change. The actual proof of positive transformation or interchangeableness is difficult to imagine, and is at present wanting. An approximation in form and character, as seen under the microscope, may obviously be delusive, and the evocation of a germinal or seminal influence of one tissue element over another, or even of traumatism upon one variety of neoplasm is merely speculative, and absolutely without foundation. Further facts and clearer demonstrations may some day be forthcoming. Meanwhile the limitation of the material involved, the definite nature of function, and the rigid exactitude of the evolutionary processes implied in the recently announced theory of Weissmann are altogether opposed to the idea that, when once the three layers of the protoblast are discriminated, any cross action or jumble of development from an epithelial cell to a connective tissue element is probable, or even possible, nor yet between a cancer cell and a round or spindle-shaped sarcoma element. Each kind of morbid growth continues true to itself, but intermixtures of them may and do occur in the highly composite animal frame.

From general considerations, as the foregoing, we may now turn to the examination of what are frequently termed more practical points. Nevertheless, no one part of this most important subject is without its close connexion with the rest, and those upon which I now wish to add a few short comments exhibit this inter-relationship in the highest degree.

As regards *age*, a sufficient regard, it seems to me, has not been paid to a possible source of general fallacy—namely, that facts are often derived from death records or mortality, without due reference to the *duration* of the disease. A further special fallacy is naturally the great difficulty of ascertaining the real date of the origin of the neoplasm; the fallacy still remains, even if the date of *apparent* commencement be, as is sometimes the case, taken as the starting point. Allowing for this, or even, I believe, without such strict allowance, my own experience would be, not from the fortieth to the sixtieth year, but from thirty-five to fifty, as the most frequent period of the onset of the malady.

As regards the influence of *sex*, with which that of special *organisation* is concerned, everyone will admit that women suffer more from true cancer than men; but that if sexual specialities be set aside men suffer more than women, as in the case of cancers of the lips, mouth, and alimentary canal generally. The most reliable numbers drawn from clinical experience are merely the result of so many associated and intervening provocative influences, and can only have an approximate relation to the truth. As to special organs, their derivation from one or other of the three primitive embryonic layers has the highest significance, for true cancer largely predominates in the epiblastic and the hypoblastic organs, as compared with the fully formed mesoblastic structures.

As to *hereditary influence*, it is of undoubted and large significance. *That*, at least, is the personal experience I would here put on record. The idea is old, and, indeed, is itself inherited; and it is faithfully enshrined in the well-known phrase, capable of a physical as well as a moral and social interpretation, "the ills which flesh is heir to." It is noteworthy to observe how its admitted effects are exaggerated and insisted on, or minimised and almost ignored, in view of the different opinions held as to the causation of cancer itself. The constitutionalist inclines to exaggerate, the parasitist to minimise, the influence of inheritance. The absence of evidence of heredity may be due to want of knowledge or the concealment of knowledge on the part of a patient, or to the premature death from accident or other disease of individuals, who yet had a latent proclivity to cancer. On the other hand, the instances on record of multiple inheritance in the members of the same family may be overvalued by some and undervalued by others; though they are certainly of real and grave significance. Hereditary influence most probably enters into the problem of the prevalence of cancer within certain localities or districts in which constant intermarriages probably occur generation after generation, and this may conduce to a special proclivity to the disease in certain self-limited races, as I have myself often observed amongst Jews; and on a larger scale in certain absolutely limited tribes or nations. The difficulties of following mentally an inheritable *materies morbi*, in the shape of a substantive morbid molecule, is not greater than that of assuming the perpetuation of such a substantial modification of a tissue, which must be associated with a proclivity to a particular disease. The student of the almost infinitely little of molecular constituency and of the almost infinite distance and number of unseen stars, and above all the mathematical mind, will find no inherent difficulties in either of these conceptions. But until the cause of cancer itself is known, the nature and conditions of its inheritance cannot be definitely indicated. At present my own impression, founded on experience, is that its influence is larger than that frequently or usually assigned to it. As to the *personal equation* due to original differences in the digestive, assimilative, and secretory functions or the actual metabolism of the body, it is quite incommensurable. So, too, the acquired peculiarities due to the antecedence or coexistence of a phthisical tendency, or of any stage of enthetic disease, cannot yet be accurately estimated or even clearly distinguished. In the antagonism between a proneness to phthisis and a liability to cancer I am personally constrained to believe. Here the numerical exceptions seem to me to prove the rule. Again, an apparently increased personal liability may be really a diminished power of resistance, and *vice versâ*; and an apparently positive immunity may be quite accidental, and not due to any constitutional conditions. The alleged steady increase of cancer amongst our own population

at all periods of life, especially at the period of greater liability, and more amongst males than females, involves serious considerations. The disease is now said to prevail more in England than in Ireland; but, on the other hand, it has been pointed out that in the United States it is more prevalent amongst those of Irish and of German descent than amongst the rest of the population. Still, further researches on all these points are required.

The influences due to *social status*, and of the many conditions which accompany wealth or poverty, appear to me, in relation to the actual proportions of the rich and the needy, to be adverse to the well-to-do classes. Excess of diet, especially of animal food, used to be said to conduce to cancer; and carnivorous mammalia and birds, especially in a state of domestication, are known to suffer more than the herbivora. The latter, however, are killed earlier, not only for the necessities of the human race, but also for those of animals of prey. Tame and wild vegetable-feeders, as a rule, fall early victims to their predatory fellow creatures. Long-lived domesticated animals, even if herbivorous, suffer from some forms of cancerous disease; and I well remember dissecting and examining a wild hare, sent to my old master, Robert Liston, which had a well-marked soft adenoid tumour of the mammary glands on the left side of the body, which weighed more than two pounds. The genuine effects of habit and irritation were especially seen in regard to the former use of the clay pipe, and are now shown in reference to the action of tobacco vapours on the tongue and palate. Many instances of both these facts are engraved upon my memory. But I would now add that I have never met with a due inquiry into the effects of chewing tobacco. Is there any peculiarity in the mode of preparing tobacco for mastication and for smoking? Is there any mischievous empyreumatic evolution in the distilling action of the pipe or the cigar? Why did not or does not the use or the abuse of snuff give rise to the development of cancer in the nose—of which I may say that I do not know of a single instance?

Finally, I have to note that the influence of *occupation*, and of its concomitant exposure to the effects of external agencies in relation to the provocation or prevention of cancer, has not been sufficiently investigated, more especially in regard to the continued inhalation or swallowing of vapours, or of minute particles of mineral substances contained in the air which workmen breathe, or the water they drink, or in the dust which lights upon their skin. Especially would I direct attention to the advisability of making an inquiry into the apparently bad or good effects of particular vapours or dust, which might contain zinc, lead, copper, silver, mercury, antimony, or arsenic. This investigation should also extend to the influence of organic vapours or of dust, consisting of living or of dead organic matter.

Lastly, to revert to the real object of all such inquiry—viz., the discovery of the causative agent in the production of cancer from what appears to be healthy tissue,—I would urge upon our modern investigators the great desirability of comparing not merely the histological details of cancerous and normal structures, but to attempt the chemical analysis of the same. By a combination of all such methods of research we may ultimately remove the reproach of ignorance on this most common and most fatal disease.

A CASE OF

HEPATIC ABSCESS IMPLICATING THE PLEURA, LUNG, KIDNEY, AND COLON: RECOVERY.

BY E. W. ROUGHTON, B.S., M.D.LOND., F.R.C.S.,
ASSISTANT SURGEON TO THE ROYAL FREE HOSPITAL; SENIOR DEMONSTRATOR OF ANATOMY AND WARDEN OF THE COLLEGE AT ST. MARY'S HOSPITAL.

DURING the past few years the surgery of the thorax and abdomen has advanced with rapid strides, and perhaps of all the viscera contained within these cavities few of them have reaped more benefit therefrom than the liver. The following case will no doubt prove of interest to those who have worked in this field.

The patient, who was a strong athletic gentleman aged twenty-three years, was taken ill with febrile symptoms on Jan. 11th, 1889, at Kandy, in Ceylon. In a few days pain over the liver and a bulging under the costal margin indicated the presence of an hepatic abscess. On Feb. 1st the abscess was opened and ten or twelve ounces of pus evacuated. The drainage does not seem to have been efficient, inasmuch as the temperature rose to between 101° and 102° in the evening. However, by March 1st the abscess had healed up, but still the temperature kept above normal. This led to an examination of the chest, resulting in physical signs of pleurisy with effusion being detected on the right side. Up to this time there had been no cough, dyspnœa, or other chest symptom. On March 16th twenty-seven ounces of clear serum were drawn from the right side of the chest by an aspirator inserted near the angle of the scapula. On March 26th the same operation was repeated, and with similar result. It appears that the physical signs of effusion continued, as he was aspirated again on April 4th, 8th, and 12th, close to the original place, but on these occasions nothing was withdrawn. These aspirations had been performed on board ship during his journey to England, where he arrived on April 13th. On the next day he came under my care, and I then made the following note: "Strongly built man, but decidedly emaciated; appetite good. Scar over liver in nipple line, just under costal margin. Liver dulness extends one inch below costal margin. On the right side of the chest there is dulness below the nipple and behind the anterior fold of the axilla; posteriorly, the dulness extends as high as the spine of the scapula. Over the dull area there is almost complete absence of respiratory murmur, vocal resonance, and vocal vibration. Heart not displaced; left lung normal; slight hacking cough, with greenish expectoration." The opinion that I formed at that time was that the physical signs indicated a pleurisy with effusion due to extension of inflammation from the liver through the diaphragm. As he had been greatly shaken during his journey to London, I thought it wisest to adopt no active treatment at once, but to allow him a few days' rest in bed. On the evening of April 18th the temperature rose to 101·2°, and was followed by profuse perspiration. The perspirations were repeated nightly, and on the evening of the 21st the temperature reached 102·2°. The following day it was considered advisable to explore the chest with a needle, and (after consultation with Dr. Gee) pus was tapped in the right axilla, a puncture near the angle of the scapula having been made without result. Under chloroform an incision was made near the posterior fold of the axilla, and an inch of the sixth rib excised subperiosteally. About twenty-five ounces of pus were evacuated. The finger inserted into the opening discovered two cavities, one extending forwards towards the nipple, and the other downwards towards the costal margin, partially separated from one another by a septum. As the incision seemed to have struck the most dependent part of the cavity, no counter-opening was made. A large drainage-tube was inserted. The immediate result of the operation was very satisfactory, the temperature falling to normal and remaining so until April 28th, when, without discoverable cause, it ran up to 101·2°. Thinking there might be some retention or decomposition of discharge, I explored the cavity under chloroform and washed it out with a weak solution of carbolic acid on the 29th. This was not attended by any good result, as next day the temperature had reached 103°. The fever, however, gradually subsided without other treatment and without obvious reason, so that on May 7th the temperature was normal, and remained so for more than a week. On May 16th, whilst the cavity was being washed out, he suddenly coughed very violently and said he tasted the carbolic acid which was being used. On the evening of the 18th the temperature rose to 101·2° and increased every evening, till on the 21st it was 103°. On the 25th he had a severe attack of coughing, and said he had a "rotten taste" in his mouth. When he coughed a distinctly fetid odour could be detected, although his expectoration was almost free from smell. The discharge from the wound remained quite sweet. Judging that some portion of the cavity had become shut off from the external opening and had established a communication with the lung, and so become fetid, I had the patient put under the influence of chloroform again and inserted my finger into the external opening. The cavity seemed to have contracted to little more than the track occupied by the drainage-tube, but at the end of the track a small hole about large enough to admit a good-sized probe was found. When this was enlarged with dressing forceps, it was found to lead into a cavity about an inch in diameter, presumably partly in the lung and partly in thickened

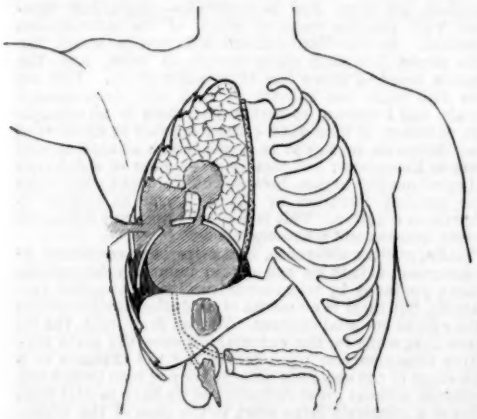
pleura. No fetid pus was evacuated at the time of the operation, but two days afterwards the discharge became distinctly fetid. It therefore appeared that this cavity was not the one containing the fetid pus and communicating with the bronchus, but was somewhere adjacent to it, and soon established a connexion with it. I do not think that the pus could have become infected through the operation wound, partly because great care was taken to do the dressing antiseptically, but chiefly because the fetor showed itself in the expectoration first. The cough and fetor continued, in spite of the wound being irrigated with various antiseptic fluids. It soon, however, became evident why the antiseptics failed to produce any effect, for after washing thoroughly in both the sitting and recumbent postures till the fluid returned unstained, if the patient gave a slight cough a few drops of most fetid pus were expelled from the wound. It was then apparent that the pus-containing cavity had a very imperfect (perhaps valvular) communication with the exterior. Mr. Godlee saw him in consultation with me, and it was resolved to make an attempt to establish better drainage. Accordingly, on June 12th I proceeded to do this, Mr. Godlee very kindly assisting me during the operation. The original wound was enlarged and about an inch and a quarter of the seventh rib excised. The sinus was then explored by the finger and probe, but no cavity could be found. The finger introduced between the ribs came at once upon a membrane running almost horizontally, and, after breaking down a few recent adhesions, could be passed either above or below it. This septum was observed to move downwards every time the patient inspired, and was suspected to be the diaphragm. After further search a narrow sinus running in the direction of the nipple was discovered and dilated with dressing forceps, but no pus was observed to escape. The whole space was thoroughly washed out with perchloride solution (1 in 2000) and a large drainage-tube inserted. The patient was much collapsed after the operation, apparently owing mainly to free oozing of blood from the many vascular adhesions which were broken down. On the next day he seemed too weak to cough, but on June 14th (second day of operation) he spat up some blood-stained muco-pus. On the next day some of the same material flowed out through the tube, thus showing that we had in reality struck the offending spot. On the 18th there was a very copious flow of a thin olive-green fluid, looking suspiciously like bile. When subjected carefully to examination, however, it failed to give any bile reactions. This curious discharge ceased in a few days, and I am still at a loss to know what it was.

From this time his condition gradually improved, the discharge lessened, the cough became much better, and he gained so much in general health and strength that he was able to drive out for a short time every day when the weather permitted: but the temperature remained raised, being about 98·8° in the morning and 100·4° in the evening. Nothing of note occurred until July 1st, when he complained of pain over the liver, and his temperature rose nearly two degrees higher. On examining the abdomen I noticed ill-defined fulness and tenderness in the region of the liver. This condition continued with but little change until July 14th, when the discharge from the wound greatly increased, and the temperature fell nearly to the normal. On the 22nd there was another copious discharge of pus, and the temperature fell to normal and remained so for the following four weeks, during which time all his symptoms disappeared, and the discharge diminished so much that there was only a stain the size of a sixpence on the dressing after being on for twenty-four hours. He gained greatly in flesh and strength, and was able to walk about his room and to drive out for three or four hours every day. Unfortunately, on Sept. 18 h he caught cold whilst out of doors. The cold seemed to "settle" in the crippled lung and produced the ordinary symptoms of acute pneumonia. The temperature ran up to 103°, the cough returned, and the expectoration became rust-coloured. It seems that under the stress of the inflammation the new tissue in the lung broke down; for a few days later there was a flow of pus from the old sinus. About this time the urine was noticed to be very dark, and on examining it I found it loaded with albumen and containing blood casts. These complications, of course, pulled him down considerably, and he lost a good deal in strength and weight. The old sinus had contracted to such an extent that the newly formed abscess in the chest was very imperfectly drained. An attempt was made to expand the opening with dressing forceps, but without much success. In a few days the abscess cavity had established a communication with one of the bronchi, and the patient spat up about five or six ounces of pus in the twenty-four hours. In this condition he went on for several weeks, sometimes the discharge from the wound being fairly free and the expectoration scanty, and at other times the converse taking place. It then became a serious question whether an attempt should be made to open up the cavity and drain it, or whether it should be left alone in the hopes that it might be emptied by expectoration, and so granulate up. Taking into consideration the albuminuria, the feeble general condition, and the difficulty of getting at the cavity without performing a formidable operation, I determined to leave the drainage to nature. The event proved that this was the best course, for the temperature gradually fell, the cough and expectoration lessened, and the albumen diminished.

In November he was sufficiently recovered to allow of his going to the south of France. There he continued his convalescence, and was soon able to walk about and enjoy himself. All his symptoms disappeared, with the exception of an occasional trace of albumen in the urine. Unfortunately, on Dec. 16th, when everything promised well, he fell sick again, with symptoms of pneumonia and nephritis. I saw him at Cannes on Dec. 21st, and found him very ill in bed with a temperature of 103°, much cough with rusty expectoration, profuse diarrhœa, and a large quantity of albumen and some blood in the urine. The next day pus was present both in the urine and in the fæces, showing that a collection of pus had burst probably into the pelvis of the kidney and into the colon simultaneously. The flow of pus relieved the general symptoms, and the temperature fell slowly. The diarrhœa soon ceased, but the flow of pus in the urine continued and occasioned an attack of cystitis, which was only relieved by washing out the bladder. At this time the urine was very scanty, and certain symptoms suggested uræmic poisoning; these were a dimness of vision and a marked divergent squint, present only on awaking, and passing off in about half a minute. Operative interference was clearly out of the question, so I contented myself with treating the symptoms and supporting his strength as much as possible. He gradually improved, and his symptoms slowly disappeared, without anything noteworthy occurring. He travelled about the Continent until May, 1890, when he returned to London, I saw him then, and found him in excellent general health. The upper part of the right lung had expanded well, but the lower part was still collapsed. In the situation of the original operation wound there was a sinus about an inch long, admitting an ordinary-sized probe. I suspected necrosis of the end of one of the ribs which had been divided, but was unable to detect any dead bone with the probe. When I examined the urine I found it natural, but Dr. Alfred Fisher (who kindly took charge of him whilst abroad) told me that occasionally a trace of albumen and a few blood-cells were to be discovered on careful examination. On June 4th he returned to his home in Philadelphia, and came under the care of Dr. William White. That gentleman enlarged the sinus, and discovered the anterior end of the posterior portion of the sixth rib necrosed; he removed the portion of dead bone and curretted the sinus, which has since granulated up and healed soundly. I heard from my patient in January last, when he informed me that he was in excellent condition.

There are many points of interest in this case, but I will content myself with stating my views with regard to its pathology. The starting-point of the disease was an abscess in the liver, the cause of which I have been unable to discover. The abscess was opened, and it granulated up. During this process the inflammation extended to the convex surface of the liver, and there produced an encysted serous peritonitis, pushing the diaphragm upwards, and producing signs mistaken for those of pleurisy with effusion. This collection became purulent and perforated the diaphragm, thus forming a large abscess partly in the abdomen and partly in the thorax. This collection was evacuated by resection of a rib, after which the surrounding parts collapsed, and shut off a portion of the abscess cavity, which soon established a communication with the lung. This portion of the cavity was then drained by operation. Next, the aperture in the diaphragm became closed, and dammed up a portion of the discharge between the liver and diaphragm until the tension

produced was sufficient to break down the barrier and re-establish the drainage. With regard to the attack of pneumonia which followed next, I cannot be sure whether it was really due to cold or to blocking up of some sinus or suppurating track in the lung which had been for a time quiescent. At the time I attributed it to cold (he certainly had a bad cold in the head at the time); but when a somewhat similar attack occurred at Cannes, and was followed by discharge of pus both through kidney and colon, I inclined to the view that some portion of the abscess cavity, which had dwindled down to insignificant dimensions, and which had been discharging a minute quantity of pus, had become closed, and so obliged to burrow in a new direction in order to find vent. (See diagram.)



References to similar cases in medical literature are scarce. In the nineteenth volume of Guy's Hospital Reports the late Dr. Hilton Fagge recorded a series of cases of abscess between the liver and diaphragm. He remarks that they are generally the result of direct external injury, or extension of disease from one of the neighbouring organs. I will give a brief epitome of those of Dr. Fagge's cases which throw light upon the pathology of my own case.

W. T——, aged thirty-eight, was under the care of Dr. Wilks in Guy's Hospital in June, 1868. He died after a month's illness, the chief features of which were abdominal pain, chiefly over the hepatic flexure of the colon, signs of effusion into the right pleural cavity, with pushing down of the liver and the constitutional symptoms of suppuration. No surgical treatment was adopted. The post-mortem examination in this case corresponds in a remarkable degree with the view which I have given of the pathology of my case. Here is the account of it:—"Below the diaphragm was a very large abscess, which had pressed down the right lobe of the liver and caused it to be concave upwards. The diaphragm was penetrated at two places. One of the apertures was large, and from it there ran a fistula obliquely upwards into a sloughy cavity in the pulmonary substance. This cavity was large enough to contain a hazel nut; its wall shreddy, with sloughed lung, and this shreddy part bounded externally by an opaque abscess wall or line of demarcation. There also ran a straight passage into the pleura. Thus the pulmonary slough communicated with the pleural cavity by the abscess below the diaphragm, which opened into either. Another perforation of the diaphragm ran to the space between the lung and the diaphragm, which was shut off from the rest of the pleural cavity by adhesion of the edge of the lung to the diaphragm." In this case Dr. Fagge was unable to discover any more probable cause than a strain of the abdomen, attributed to twisting suddenly in bed.

S. T——, aged thirty-nine, was admitted into Guy's Hospital under Dr. Habershon in 1865, and died shortly after admission, so that no clinical history could be obtained. At the necropsy the *right* pleura was found to contain about three pints of turbid fluid. The *left* pleural cavity contained pus and the lung was adherent to the apex of the thorax above and to the diaphragm below, thus holding the latter up and preventing it from being pushed down by the effusion. Near the middle of the diaphragm, close to the pericardium, there was a perforation the size of a sixpence, which was bevelled so as to be wider towards the chest than towards the abdomen. In the thick pleura near this hole there were many crooked-looking excavations; some of these passed through the pleura itself and came upon the connective tissue between the two serous sacs about the front of the diaphragm. The pericardium was closed by adhesions. A large abscess was found between the left lobe of the liver and the diaphragm, and communicating with the empyema, and at one place eroding the convex surface of the liver. In this case it appears from the account of the post mortem examination that the empyema was the primary lesion, and the hepatic suppuration the remote effect—in fact, just the reverse of what I suppose took place in my case.

In the same paper Dr. Fagge records several other cases of abscess in the upper part of the abdomen, perforating the diaphragm and involving the pleural cavity. Some of them were due apparently to injury and others to disease of the stomach, spleen, or peritoneum. These cases, however, do not bear so directly on the case I am at present endeavouring to elucidate.

In the same volume of Guy's Hospital Reports, Dr. Fred. Taylor records a case of abscess between the liver and diaphragm, which resulted from a kick over the hepatic region and exposure to cold by immersion. At the post mortem examination the right lung was found compressed against the spine by a serous pleuritic effusion, and adherent by its lower surface to the diaphragm. Between the diaphragm and the upper surface of the liver was an abscess containing about sixteen ounces of pus, and communicating with the lung through an opening in the diaphragm and the superimposed adherent pleura. There was no communication with the pleural cavity.

I have thought my case worthy of being recorded, since, as far as I can ascertain, there is no similar case on record in which recovery took place. I attribute the favourable result partly to the surgical treatment adopted, partly to the devoted attention of the patient's friends and nurses, but I think chiefly to the fact that he possessed a robust constitution untouched by alcohol or intemperance of any kind.

Westbourne-terrace, W.

THE PRINCIPAL AND MOST EFFICACIOUS MEANS OF PREVENTING THE SPREAD OF ENTOZOAL AFFECTIONS IN MAN.[1]

BY Dr. PROSPERO SONSINO (OF PISA).

MR. PRESIDENT AND GENTLEMEN,—I wish to call the attention of this meeting to the prevention of a group of diseases which play an important part in the causation of the morbidity and mortality of mankind, especially in hot climates. I have undertaken to treat this subject with all the more pleasure, seeing that I am in this country and among you, gentlemen, to many of whom is still present the memory of a man whose busy, scientific life, though unfortunately too short, was so much occupied with the prevention of entozoal affections. I may rightly say that no man has shown so much earnestness in solving the questions regarding this subject as the late Dr. Spencer Cobbold.

There are no diseases more preventable than the entozoal, provided we know sufficiently well in each case the manner of introduction of the entozoon which produces a given specific disease. Yet it seems to me that as much attention as it deserves is not generally given by hygienists to the subject. The number of internal zooparasites as yet observed in man, excluding some doubtful species, amounts to nearly fifty. But in this reckoning are comprised some small zooparasites of protozoal character, which I will not refer to in this communication, as their manner of introduction to the human subject and their morbid action on their host are less known. Such are some amœbæ and cercomonas, a balantidium, some coccidia, and the more important hæmocytozoon, which, owing to the importance and wide distribution of the fevers originated by it, cannot be taken together with the ordinary entozoa. I shall limit, then, my consideration to the prevention of the diseases of man caused only by the entozoa which belong to the zoological class of vermes, with the exception of two species of pen-

[1] Paper read in Section I. of the International Congress of Hygiene.

tastomum, which belong to the type of the arthropoda. Nay, I will restrict my consideration only to the more important of these, while I include those that are exotic as regards Europe in a synopsis indicating their respective geographical distribution.

First of all it will be convenient to indicate some general differences between the ordinary entozoa on the one hand, and the so-called micro-organisms on the other, in their relation to the bearer (man). These differences are of great importance, especially from the point of view of prevention.

The first difference to which I wish to call your attention is that entozoa coming from without never multiply indefinitely within the body of the bearer. Therefore the effect on the bearer's organism is in relation to the number of individuals of an entozoon that may enter it. Micro-organisms, on the other hand, may enter the body only in small number, yet multiply there indefinitely. The case of trichina is not opposed to this rule for the entozoa, as the gravity of the infection is always proportioned to the number of muscle-trichinæ swallowed, and if only one has been ingested, the infection in the muscles of man will be limited to the relatively small number of larvæ that can be produced by a single adult worm.

Another difference depends upon whether there is any individual predisposition offered or not by the higher organism to the life and welfare of the parasite; while for entozoa the predisposition is rather specific than individual, for the micro-organism is necessarily both specific and individual. Put a man in the condition of swallowing a *Cysticercus cellulosæ*, and we can be sure that some time afterwards he will exhibit tænia solium. Let him ingest some living and ripe eggs of tænia solium, and we can be sure that he will be infected with *Cysticercus cellulosæ*. Let him ingest some larvæ of *Anchilostoma*, and he will become affected by *Anchilostomiasis*, provided that the larvæ have reached the degree of development necessary for a parasitic life. The same we may say of every entozoon without exception. But if we administer cysticercus cellulosæ to a species of animal not adapted to the life and well-being of this parasite, it will not grow into a tapeworm. Even the specific condition of the superior organism has often little to do with its infection by an entozoon. In many cases an entozoon does not take up its abode in an animal merely because there is no chance for reaching the intestine of this particular animal in its free stage. But granted that the free stage (egg or larval form) be artificially or accidentally introduced into the same animal, it may happen that development occurs in the new host. In this manner I succeeded in rearing in rabbits a certain species of echinostomum (*Distomum recurvatum*, Linstow), which is a parasite ordinarily found only in ducks. This I managed by introducing into a rabbit's stomach some molluscs (*Physa alexandrina*) that were infected by the encysted *cercaria* of the same echinostomum. We know that in Japan, Formosa, and Corea (Baelz and Manson) a fluke may take up its abode in the lungs of man, giving rise to a strange form of endemic hæmoptysis, and in the human brain giving rise to a form of Jacksonian epilepsy (Yamagiva). This fluke (*Distomum Ringeri*, or *Distomum pulmonum*) has only recently been found to be the same as the *Distomum Westermanni* found in the tiger (Leuckart). Thus we see that the same entozoon that finds conditions suitable for its life in man lives even in a carnivorous animal, and that man is infected by it in those countries, probably only because he partakes in part of the same food or drink as the carnivora. Moreover, man may harbour in the gall ducts *Fasciola hepatica*, like the herbivorous mammalia, and *Distomum sinense*, a species which is found also in the cat. And this because man, being omnivorous, partakes at the same time of the habits of the herbivora and of the carnivora. What at first sight we may think is due only to specific disposition is due simply to the mere accident of the host's meeting with, or not meeting with, the parasite. But with the micro-organisms matters are otherwise. There is no doubt that everyone of us often introduces the tubercle bacillus into his lungs during inspiration, but the presence of this bacillus in our body is not always sufficient to develop into disease. Why not? Only because individual conditions, unfortunately too common, are necessary to offer a favourable soil for the development of this same bacillus. It is equally well known that many other micro-organisms, pathogenetic for man, are often found in the saliva of persons who still continue to enjoy very good health. Even of Koch's cholera comma bacillus, or spirillum, it has been said that there are many persons who have so good a stomach as to digest it. So we often see, in countries where cholera is endemic or epidemic, the disease attacking only some limited classes of persons who, owing to their peculiar habits of life, are weaker, and offer less resistance to the attacks of the parasite and a nutritive soil more adapted for its growth. With entozoa it is not the same. The strength and health of the bearer have no influence in hindering their development in his body, when they enter it in the stage favourable for development. Very possibly sickness and weakness in the host may in some instances be even inimical to the development of an entozoon, as in some rare instances they may be inimical to the development of a micro-organism. In the case of micro-organisms we often find a particular disposition associated with peculiar races or breeds of the same species of animal. So *Bacillus anthracis* is known to attack the white mouse less than other breeds of mice, and the Algerian breed of sheep less than other sheep. This we never find with the entozoa of man and domesticated animals, and I venture to assert that there is no example of an entozoon of man that cannot develop in all races of man. Bilharzia in Egypt is very common in natives, and is rare in Europeans; but this is not a case of a different predisposition due to race, because any European who drinks water without filtration in Egypt is just as subject to Bilharzia as a native. This is another important difference between entozoa and micro-organisms.

Finally, another difference, that is perhaps correlated to the foregoing, is that we can obtain immunity for certain diseases produced by micro-organisms by the so-called vaccinations, but there is no means of producing similar results in the case of entozoal diseases. We can draw, then, the inference that while for the entozoal diseases the main preventive measures rest upon preventing the entrance of a given stage of the entozoon into the body of man (which can be effected without great difficulty, as we have to deal with bodies of a relatively large size), in the case of the micro-organisms, whose entrance we cannot always successfully hinder, we must rely principally upon acting on the individual organism and diminishing its predisposition to the development of each pathogenetic micro-parasite.

Restricting myself to the prevention of entozoal diseases, I must recall now for our purpose two practical divisions of the entozoa. One based upon their geographical distribution, by which entozoa may be divided, according as they are more or less diffused, into *cosmopolite* and *regional*, and into *indigenous* and *exotic* in Europe; the other upon the organ of the bearer's body in which the entozoon takes up its abode. The latter classification is especially based on the distinction between parasites living in the intestinal canal, and in parts that pour out their secretions into that canal (as the gall-ducts), or in any other parts communicating with the exterior; and parasites found in closed cavities, as the connective or other tissues of the body and the vascular system. It is clear that as regards *regional* entozoa, rules of prevention must concern only local conditions; and as regards intestinal entozoa, our main measures must rest on the destruction of the excreta that contain their eggs and embryos. If we throw a glance at the synopsis which I present to you,[2] showing the geographical distribution of the principal exotic entozoa of man, it appears at first view that they are confined to a certain number of countries which are certainly not the most advanced in civilisation. Put apart from trichina (which, being especially observed in Europe and the United States of America, forms an exception, and which only shows that the more civilised peoples may still offer peculiar habits that are not always an indication of a more refined civilisation), and *Echinococcus*, *Anchilostoma*, *and Rhabdonema intestinale*, which are quite cosmopolite, although the two latter are more frequent among the inhabitants of hot climates and peoples backward in civilisation, and the former largely diffused only among Icelanders, we see *Bilharzia hæmatobia* almost quite relegated in man to the African continent; *Filaria sanguinis hominis* (distinguished now by Dr. Manson into three different species—viz., *Filaria nocturna*, *Filaria perstans*, and *Filaria diurna*) to affect all the continents except Europe, principally Africa and Asia; *Distomum Ringeri*, *Distomum sinense*, and *Bothriocephalus Mansoni* relegated to the far eastern countries of Asia. Moreover, entozoal diseases we generally find more frequent among children than in adults; they are very common, too,

[2] This will appear in our next issue.

in the insane. Both children and the insane are deficient in habits of cleanliness, which offers so great a preservative from infection by entozoa. It is said that Liebig measured the degree of civilisation of a people by the quantity of soap consumed per head of its population; and I think that the time will come when the degree of civilisation of a people will be estimated in proportion to the rarity of entozoal diseases among its members. Indeed, the main measures of prevention for the greater part of entozoa concern personal rules respecting the manner of living, eating, drinking, and washing, which generally agree pretty closely among the more refined civilised people.

(To be concluded.)

A SUCCESSFUL CASE OF UNILATERAL LARYNGECTOMY.

BY THOMAS F. CHAVASSE,
SURGEON TO THE GENERAL HOSPITAL, BIRMINGHAM.

DAVID C——, aged three, was admitted to the General Hospital on Jan. 10th, 1889, under the care of my colleague, Dr. Saundby, for laryngeal dyspnœa. The mother stated that four older children had previously died of "croup." On Jan. 12th intubation was performed, and this was repeated several times by the resident surgical officer, Dr. E. Nason. Owing to the sudden disappearance of the intubation tube, tracheotomy had hurriedly to be resorted to on Jan. 21st, in order to prevent death from asphyxia. Details of the case, with those of others upon whom intubation was practised, were reported in the *Birmingham Medical Review* for October, 1889, by Dr. Nason, who makes a note at the end of his report, that "the larynx is apparently almost completely stenosed." When the patient was transferred to the surgical wards in the summer of 1889 he was wearing a tracheotomy tube, and as regards speech was absolutely dumb. When examined, an obstruction was met with in the larynx, feeling like a dense diaphragm, which various efforts made by Mr. Barling and myself with various appliances, both from the mouth and the opening in the trachea, with and without chloroform, failed to penetrate. The laryngoscope gave no satisfactory result, owing to the restlessness of the patient.

Operation (Oct. 29th.)—The thyroid cartilage was divided by an incision in the median line, and the two halves being held apart, the larynx was found to be completely occluded by dense cicatricial tissue. The soft parts having been dissected off the right ala of the cartilage, it was separated from its connexion with the cricoid and removed. The cicatricial tissue in the larynx was then freely taken away with the scalpel and Volkmann's spoon, but the air passage being still occluded below, the right half of the cricoid cartilage was excised by prolonging the incision in the median line downwards to the tracheal wound. The obstructing fibrous tissue being then removed, a free passage upwards to the epiglottis and downwards to the bronchi was established. After the preliminary median incision through the soft parts the hæmorrhage was practically *nil*. The section of the cartilages was easily and accurately made by means of a stout scalpel.

The subsequent progress was satisfactory; for the first two days feeding was performed through a nasal tube, but on the third day liquid nourishment was given by the mouth. At first some of the fluid taken showed itself in the wound, so that it was deemed advisable for a few days afterwards, when liquids were given, to insert a small piece of sponge immediately above the tracheotomy tube. On the fifth day minced meat was readily swallowed. At the end of six weeks the wound had healed throughout, and in order to maintain the patency of the opening into the mouth a double tube was constructed, one portion of which passed upwards to the epiglottis and the other downwards into the trachea. At first difficulty was experienced in reintroducing the tubes after cleaning them, and an anæsthetic was necessary to enable this to be done; but for the last year the insertion and withdrawal have been readily performed, and the sizes of the tubes have been twice increased, the last occasion being at the end of January of the present year. The patient's power of expression gradually returned, and he can now speak in a hoarse but audible whisper. In July of last year a vibrating reed (Irvine's modification of Gussenbauer's) was fitted to the tube, and subsequently two others were constructed with lower notes. With this apparatus he can speak clearly and distinctly in a monotone, heard at a considerable distance.[1]

With regard to the operation itself, the median incision was found to give free access, and permitted of an easy and rapid removal of the cartilages. The bleeding was so slight that no tampon was necessary. No doubt the tracheotomy performed nine months previously much facilitated the severer procedure. The stenosis must, I think, be mainly attributed to the ulceration excited by the intubation tube, the preliminary report showing that it was worn continuously for nearly nine days, and that reintroduction was necessary on seven occasions. To laryngeal tissues already inflamed and softened, the constant introduction and presence of a hard foreign body must be a source of great irritation; and whether for English throats, in really bad cases of diphtheria and croup, tracheotomy is not in the long run the lesser of two evils is a question for consideration. My own experience at the present time would lead me to prefer the cutting operation. Maintaining the intubation tube in position is often a matter of difficulty, especially in young subjects. In the case here reported it was finally coughed up, swallowed, and passed per anum, and an exactly similar sequence of events was repeated in another child shortly afterwards. Doubtless others have met with a similar experience. The phonating reed, when placed in position and worn for any time, was found to cause some obstruction to the passage of air to the lungs, so the patient was taught to introduce it himself only when he wished to make his voice more audible. For all practical purposes he can make himself understood without the introduction of this specially constructed apparatus. The general health and development of the boy are not apparentiy being interfered with by the operation.

Birmingham.

[1] The patient was exhibited to the Midland Medical Society on March 18th last, and is now an inmate of the Barnardo Homes.

THE PREVENTION OF FEVER IN INDIA.[2]

BY SURGEON-GENERAL SIR WILLIAM MOORE,
DELEGATE FOR THE PROVINCE OF BOMBAY.

THE prevention of fever in India should be considered under two heads: What can be done by authoritative regulations, and what can be effected by personal hygiene? And such heads should be considered with reference to Europeans, including soldiers; and, secondly, with respect to the general population. Much has been done for the European soldier by the provision of better barracks, baths, workshops, recreation rooms, &c.; and in some stations better bungalows for officers have been provided. Much attention has been given to the clothing and dieting of the men, and intemperance has been discouraged in every possible manner. Much, however, still remains to be accomplished. Men are sent out too young, notwithstanding the well-known fact that young soldiers in India are particularly liable to fever. The standard barracks are more or less a mistake, for no one plan of barrack or bungalow is suited to every varying climate of Hindustan. Over-ventilation should be guarded against as much as under-ventilation. Ventilation in barracks is often excessive, from which the men sleep in a draught and get chilled, which is a fertile cause of fever. More in the way of drainage is required round barracks and bungalows. The dry-earth system of conservancy is generally adopted, and self-acting hoppers should be supplied. Strict orders should be enforced against men staying in the bath too long, which is frequently followed by fever or liver affection. The natives of India know well the value of the "cummerbund" (a cloth worn round the loins and bowels), and wearing a flannel belt should be made obligatory, for a congested kidney may be a cause of fever. Arrangements should be made for a change of clothing when coming in heated and perspiring from parade. A free ration should be given in the early morning of bread, biscuits, tea, cocoa, or coffee, which renders the system less liable to be affected by the chilly

[2] Paper read in Section I. of the International Congress of Hygiene.

morning air. The men should not be allowed to supplement their rations with bazaar pork, for a condition resembling typhoid fever may be caused by *trichinæ*, often found in pork. Typhoid fever has also been attributed to impure milk, but unless Government take the milk-supply into their own hands it is difficult to say what more can be done. A scorbutic taint predisposes to fever; hence the desirability, whenever possible, of double rations of green vegetables. All the above is to be effected by authority, but classes for instruction in hygiene should be formed in every regiment or station, where both men and young officers should be taught how to take care of themselves in a tropical climate. Lastly, when the House of Commons recently decided against the continued operation of the Contagious Diseases Act in India, M P.'s could scarcely have been aware that a large amount of the fevers European soldiers suffer from in India is either purely syphilitic or much aggravated by syphilis.

As regards the general population, throughout the country, with some exceptions, both surface and subsoil drainage is much required. This is especially the case in irrigated districts; but the problem has yet to be solved how effective drainage is to be combined with efficient irrigation. Greater care, however, should be taken that roads and railways do not act as artificial dams. It has been stated that malaria may be introduced into the human system through the medium of waters. Much has been done in India to secure pure water for towns and villages, but much more is required. A badly fed people are very liable to fever, and the railways have done much to equalise the food supply. Formerly one district might be famine-struck, while plenty reigned in the next; because there were no means of conveying food—neither grass nor water for beasts of burden. Opium is used extensively in India for one reason, because the Indians place reliance on it as a preventive of fever. If the House of Commons stop the use of opium except when prescribed by a physician—as advised by Sir J. Pease—they will assuredly largely increase the fevers of India, already so prevalent. The principal causes of fever among the natives of India are to be found in a teeming population, working hard, living scant, and residing in ill-ventilated buildings, more or less destitute of drainage and therefore damp, and exposed to great solar heat and to wide seasonal and diurnal changes of temperature; also in certain unhealthy habits and customs, among which are want of cleanliness in houses, washing in their houses on an earthen floor, washing in the open air, perhaps in a cold wind, sleeping on the ground, and wearing garments not sufficient to protect them from changes of temperature, especially during the monsoon. Such habits must be abandoned, and the bulk of the people must have more food, better dwellings, more suitable clothing, and some knowledge of hygiene, before we can hope for a material reduction of Indian fevers. The prevention of Indian fevers is not to be accomplished by searching for germs. Even admitting that the bacillus malariæ and other microbes cause fevers, it must also be admitted that they are frequently destroyed by that *vis medicatrix naturæ* which the latest theory regards as devouring cells (phagocytes). The prevention of fever in India depends much more on strengthening the *vis medicatrix naturæ* by the various means named than on any other measure. Although Government can and does insist on a large amount of outside sanitation, the State cannot interfere directly in the ordinary internal daily life of the people. But with material and moral progress there will be hygienic progress, and with such advance Indian fevers will diminish. Whether Indian fevers are due to paludal or telluric emanations, or to chill, or to both, all directions for their prevention tend to increase dryness of the climate, and thus lessen the sources of chill, or by clothing, nourishing food, avoidance of fatigue, and quinine, to prevent its operation.

A CASE OF CEREBRAL DISEASE.

BY F. HEATHERLEY, M.B., B.S. LOND., F.R.C.S. ENG.

THE following notes will, I hope, prove interesting in several ways. In the first place as an example of the fact that grave lesions are not always accompanied by well-marked symptoms, and therefore as a warning to beginners like myself. In the second place as a refutation of the very prevalent opinion that private practice is characterised by an absence of interesting cases, which opinion arises, I think, in most cases not from any want of material so much as from disinclination, absence of careful observation, or want of time on the part of the practitioner who makes the complaint. I have purposely left the heading vague in order that those who enjoy making a mental commentary of the case as they read on may find the answer at the right place, the end. I am only sorry that the post-mortem examination was incomplete.

A. B——, aged sixty-two, married, no children by second wife, and only one by first wife (now a healthy young man). Commercial traveller by occupation; total abstainer since youth. Boasted of never having had a day's illness since childhood. Very active in his habits, and a great devourer of political literature. On June 27th, having previously been in good health, he related on returning in the evening from Liverpool, where he had been walking about all day in business pursuits, that whilst passing the public library he suddenly became so giddy that he was glad to go in and sit down for a while. The sensation passed away, and he only felt rather more tired than usual by the time he got home. His wife suggested that it might have been caused by the sun, but he said that he had not felt the heat so much as on previous days. His people thought that most probably the attractions of the public library had had something to do with the matter. On the 28th, on returning home, he complained of earache on the left side, and said he thought he had caught cold. He had been rather deaf in this ear for some years, but there was no history of discharge. He took a warm bath before going to bed in order to cure his supposed cold, and slept well. On the 29th, on returning from business, he said that the pain in his ear had been very bad at times during the day, throbbing, and shooting into the temple. On the 30th (Sunday) he seemed poorly, and silent instead of talkative. He persisted in eating liberally at dinner, although it was evidently an effort. He sat reading most of the day with his handkerchief up to his ear; he said that the pain was bad, but seemed to come and go. He complained of occasional giddiness. After supper he had a severe shivering fit, but it only lasted a short time. He went to bed earlier than usual. His wife thought that he might be feverish, but he did not feel hot to the touch. Slept quietly all night. — July 1st: In the morning he wanted to go with his wife to Southport, combining business with pleasure; but, as he seemed poorly, his relatives, with some difficulty, persuaded him to stop at home. He read most of the day, and his friends say that his appetite was poor, but he was not thirsty or flushed. His head was not hot, his eyes were not bloodshot, he was not irritable in temper, nor did he seem unduly sensitive to light or noises. In the evening he amused himself by digging in the garden, but came in complaining that he felt cold, and that all his bones ached as if he had over-exerted himself. He went to bed after having a hot bath, and slept well.—2nd: He seemed rather worse, but after reading all the morning he persisted in accompanying his wife to Liverpool in the afternoon to buy a patent ear lotion. He walked all right, but once or twice had to stop owing to giddiness. He was quite clear-headed—in fact, he noticed a halfpenny wrong in the change, and had it rectified. After tea he persisted in going to the village on some business, although his friends wished him to stay at home and send for the doctor. In the evening he said that the pain had spread to his forehead over the left eye, but it was not bad enough to prevent him from eagerly reading an evening paper which his step-son brought home. He did not complain of stiffneck or of any other pain; neither was there any suspicion of an injury to his head. His bowels during this time acted once a day, but his urine had been thick. He went to bed at 11 P.M., and had a basin of gruel as he felt rather worse. He was restless and could not sleep, but did not complain of his head.—3rd: At 1 A.M. he got out of bed and went to the washstand and vomited; returned to bed, but could not sleep; occasionally stretched his arms over his head. His head felt hot to his wife's hand. He got out of bed several times during the night to vomit, and once staggered and nearly fell. The last time he was so weak that his wife had to hold the utensil for him. At 5 A.M. she went downstairs and made him a cup of tea, but on bringing it back she found him insensible. She awakened her son and they both tried ineffectually to rouse him, and immediately afterwards he went into a fit. The son fetched me, and on my arrival I found the patient, a thin, grey-headed man, in-

sensible, lying on his back and groaning. His hands were clenched, his arms semi-flexed, rigid, and raised slightly from the bed, and trembling violently. His legs were extended, stiff, and also trembling. There was slight opisthotonos. His face was pale, his mouth open, eyes widely opened, no squint or deviation, conjunctivæ almost insensitive, pupils contracted, no reaction to light. His respiration was 13 to the minute, expiration accompanied by straining groans like those of a woman in labour, and with each expiration the muscles of the neck and face, including the platysma, were strongly contracted. Temperature in axilla 102·4°. Pulse 116, small, weak, compressible, artery apparently good; beat occasionally dropped during expiration. Heart sounds normal; entry of air good all over lungs. No discharge from either ear; wax was present in each meatus. No redness or sign of injury anywhere about the head, and nothing abnormal to be discovered about the body, except two small oval scars on the left tibia. I considered his condition evidently hopeless, but in order to spare his relatives unnecessary anxiety I gave them all something to do—e.g., fetching ice &c—and recommended a consultation. At 7.30 A.M., arms and legs more relaxed; no knee-jerk to be got. No difference in resistance of opposite limbs, no distortion of face, conjunctivæ quite insensitive, pupils still contracted, face becoming cyanosed, eyelids relaxed, allowing eyes to be closed. Temperature in axilla 102·4°. Pulse 124, weaker, rather difficult to count, and intermittent. Respiration 10, irregular, but not Cheyne-Stokes. Pulse gradually failed, and death occurred at 8 A.M.

Post-mortem examination, restricted to head, thirty hours after death.—Rigor mortis was slight in arms, marked in legs. On removing the skull cap and cutting through the dura mater, it was found to be adherent to the pia mater in many places. The pia mater was swollen, infiltrated with purulent lymph in the neighbourhood of the vessels all over the convexity, but not more on one side than on the other. Fluid in subdural space increased (?), and rather turbid. Pia mater stripped easily. No tubercles found anywhere, even with lens. Base of brain healthy, vessels good. Dura mater everywhere healthy. No diseased bone found anywhere. Internal ear chiselled out on both sides, but no signs of inflammation found. All sinuses normal, and no further light thrown by cutting up the brain.

Remarks.—I am sorry that the post-mortem examination did not show any cause for the purulent meningitis. As to diagnosis, my first thought was "status epilepticus," and then I thought of poisoning, with all its attendant difficulties for the medical man. I finally fixed on hæmorrhage into the pons; the fact of my not having kept the thermometer in long enough the first time and the consequent higher reading on the second occasion helping me into this error. The history obtained before death was incomplete, and the details above were only obtained afterwards by careful inquiry. I found post mortem that I might have diagnosed the case if I had only known Dr. Fagge's writings better. For those in the same position I venture to add the following extracts: "Simple meningitis commonly begins quite suddenly; it has no prodromata. The patient, if an adult, may be seized with a rigor. Headache is generally present from the first; it may either be referred to the forehead or affect all parts alike. There may be exacerbations from time to time, in which piercing cries are uttered. Giddiness is frequently an early symptom; the ground seems to give way beneath the feet, and the legs may feel so weak that to stand upright is impossible. Vomiting, perhaps, occurs once or oftener.... The temperature rises, and may reach 104° by the third day; there may be great complaint of thirst. The pulse is quickened as a rule, but this is not always the case. Epileptiform convulsions are not uncommon, and sometimes mark the commencement of the disease. ..... His mind may for a time be perfectly clear, but afterwards he becomes delirious or comatose. ..... The pupils are as a rule contracted. The duration of simple meningitis varies with its intensity. Those cases in which the whole surface of the brain, including its convexity, is inflamed scarcely ever last more than a week, and generally terminate within three or four days" (p. 702). I found that Dr. Fagge's "Medicine" threw more light on the case and afforded me more help than any other authority in what Dr. Wilks used to call the hardest examination of all—the examination by the bedside. I think on the whole that it was lucky for me that I was not called in and asked for my prognosis in the early days of the disease.

New Ferry.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTES ON A PECULIAR INJURY TO THE EYE.

BY T. O'CONNELL REDMOND, L.R.C.S.I., L.R.C.P.I.

ON the 11th inst. I was sent for to see a lady who had met with an accident. When I arrived, five hours after the occurrence, I found my patient to be an elderly lady, suffering from what I at first thought was an ordinary black eye (right), except that immediately under and parallel to the eyebrow there was a jagged, open wound, extending for about half an inch, or perhaps a little more. The eye was tightly closed, both lids much puffed and ecchymosed, and blood was oozing from between the lids. She complained of but little pain, and, in fact, suffered her friends to sponge the parts, which had been done frequently before my arrival. The history I got was as follows: She was going down a rather dark staircase, carrying a flower-pot set on a common white delf saucer. There was a trunk at the foot of the stairs, close up against the last step. The old lady did not notice this, but came placidly along until she met the obstacle. The rest to her is a blank. When found, the saucer was smashed, the flower-pot intact, and my patient's eye injured. On examining the eye I felt something hard and pointed under the upper lid. I retracted the lids a little, a matter of much difficulty, and saw, instead of the eye, a white shiny substance. Nothing could be seen save this. I now directed my attention to the wound under the eyebrow, and on passing down a probe came upon a hard substance. I enlarged the wound slightly, and, passing down a forceps, seized the substance, and, with much ease, drew out a piece of the saucer, triangular in shape, equilateral, slightly concave, measuring each side, an inch and one-eighth, with jagged edges and sharp corners. I could now examine the eye, and found to my astonishment that it was clear and sound, although it had been completely covered by the portion of saucer, the concave portion of which rested against the organ. There was some redness of the conjunctiva at the outer canthus, and also a small clot or so. Nothing else. No pain, and vision and accommodation perfect. I sutured the wound, dusted it with iodoform, applied water dressing and a pad, and kept the patient in bed for a couple of days. The old lady is now well.

I think this case is worthy of record, not because of any special difficulties to the medical attendant, but as showing the amount of ill-treatment an eye may suffer and show so little injury. I think it was a most providential escape.

Dublin.

FISTULA IN ANO TREATED BY EXCISION AND SUTURE.

BY E. HOOPER MAY, F.R.C.S. ENG.

IN THE LANCET of July 18th, 1891, Mr. A. S. Barling relates a case of fistula in ano, in which, after opening up the sinus, the wound was sutured.

Last August a woman aged forty was admitted into the Tottenham Hospital under my care, in whose case a similar method of treatment was adopted. In this instance there were two fistulæ, each requiring an incision of considerable length, and so near together that it was deemed advisable to deal with one only at first. This was done in the usual way on Aug. 29th. On Sept. 18th the other sinus was laid open, all granulation tissue carefully cleared away, and the wound closed from the deepest part to the surface by a continuous buried suture of catgut. On Sept. 25th the wound was healed. The wound left by the first operation on Aug. 29th did not heal for another fortnight, although at the time of the second operation the unhealed part of it was scraped and stitched up in the manner above described.

More recently a case has occurred the treatment of which involved long incisions through both gluteal regions. These were closed by the same method, with a result quite

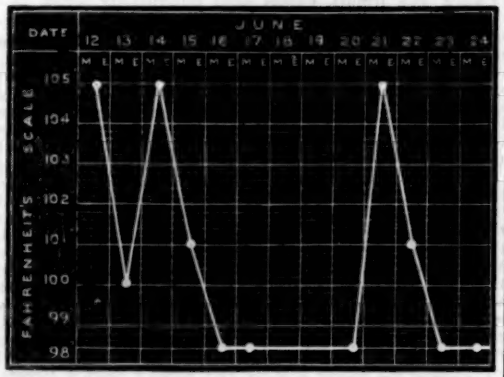
as satisfactory as in the first instance; but the patient has since been troubled by the occasional appearances of small sinuses. The catgut employed was prepared by soaking in perchloride lotion, and preserving in alcohol and juniper oil.

Tottenham, N.

PUERPERAL SEPTICÆMIA.

BY WALTER H. HAW, B.A., M.R.C.S.

THE case of puerperal septicæmia of which the temperature chart is here given is very instructive as regards the light it throws upon the effect of the diphtheritic poison upon the puerperal state. The chart explains itself almost sufficiently. I have only to add that on June 14th diphtheritic-looking



patches were discovered in the vagina, which soon disappeared under the combined influence of a lotion of permanganate of potash and iodoform powder. There was evidently reinfection on the 20th, with a reddish-brown foul vaginal discharge, which quickly diminished. The coloured servant had slept for several nights in the room adjoining the lying-in chamber, during which time the diphtheria was incubating. There were never any symptoms of uterine or other complications.

Rustenburg, South Africa.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

ST. BARTHOLOMEW'S HOSPITAL.

TWO CASES OF SUBMAXILLARY CELLULITIS; RECOVERY.

(Under the care of Mr. MORRANT BAKER.)

THE following cases illustrate well one special type of submaxillary cellulitis, often called angina Ludovici. In the type referred to, the cellulitis, although extensive, is still limited to the submaxillary region, and with more or less well defined boundaries. It has not, as in the other type, extended to the tissues generally of the neck or the upper part of the chest, and has not led to the extensive sloughing which in itself constitutes a great danger; but if not relieved the dangers of extension to the region of the larynx, with difficulty of breathing, ending in asphyxia and death, are probably equally great, or even more so, and it is all important that the relief should be given early by incision. The second case illustrates the necessity of early interference with the knife, even before the formation of a definite collection of pus. In both there was trouble with the teeth, and a breach of surface existed in the gum before the inflammation under the jaw commenced. They illustrate also the benefit of surgical treatment in a condition which, if neglected, only too frequently proves fatal, either in the way already mentioned or from blood poisoning. For the following notes we are indebted to Mr. J. H. Maund, house surgeon.

CASE 1.—W. K——, aged thirty-seven, was admitted to the hospital on Feb. 11th, 1891, suffering from a large swelling in the neck. On Feb. 8th the patient suffered from toothache; on Feb. 9th and 10th he had some teeth extracted. There was slight swelling round the jaw on one side when he had the first tooth extracted. This increased, and extended across the throat to the other side by the 11th. His throat became very painful, and swallowing difficult. On admission the patient had a large hard swelling of all the tissues in the submaxillary region, extending from the lower jaw to the thyroid cartilage, and laterally to the parotid region on both sides and the adjoining portion of the face. The swelling was very tense and painful; fluctuation doubtful. The mouth could be opened only to a slight extent, nor could the tongue be protruded. The mucous membrane of the floor of the mouth, red and œdematous, was pushed up to the level of the lower teeth. The voice was somewhat croupy, and the patient could swallow only with difficulty; he made frequent attempts to rid himself of the thick mucus accumulating in the mouth by expectoration. Chloroform was administered, but the administration of this required great caution, as some difficulty of breathing, as if from laryngeal obstruction, occurred. Under the direction of Mr. Baker, Mr. Paton, house surgeon, made an incision through the skin about an inch in length in the middle line immediately below the chin; and after penetrating for some distance with the knife this was laid aside, and the wound deepened with a steel director. It was not, however, until a forefinger was introduced for almost its full length that the abscess cavity was reached, and about three ounces of horribly offensive pus let out. A wire drain was used, and boracic fomentations applied. Fluid diet was ordered. The temperature on admission was 102·8°; this fell after the incision to 99·2°. The day after operation the swelling had greatly decreased; the patient was able to protrude his tongue a little, but still spat up a quantity of phlegm.

Feb. 18th.—Has had some pain over the left parotid. Now takes minced chop and mashed potatoes. Swelling almost gone; very little discharge; drain removed. He left the hospital well on Feb. 25th.

CASE 2.—T. H——, aged fifteen, a bottler, was admitted to the hospital on July 2nd, suffering from a large swelling under the chin. On June 26th he suffered from toothache. This continued for two days; he then had his gums lanced. On June 30th the swelling below the chin began, and increased rapidly in size. On admission the patient had a large, tense, elastic swelling under the chin, extending from the lower border of the inferior maxillary bone laterally to the angles of the jaw on either side and downwards to about the middle of the thyroid cartilage. The skin over the swelling was red and hot, the swelling very tender and painful. The floor of the mouth was raised to the level of the top of the teeth, and the tongue pushed upwards against the hard palate; it could not be protruded beyond the teeth, nor could the mouth be opened to any extent. The second lower molar on the right side was loose. There was some slight difficulty of breathing; the breath was very foul-smelling. Temperature 100·8°. An anæsthetic was administered the same afternoon, and under Mr. Baker's direction Mr. Maund made an incision in the skin, in the middle line and between the chin and the hyoid bone over the most prominent part of the swelling. This was deepened partly by the knife and partly by a closed pair of dressing forceps until the mucous membrane of the floor of the mouth was reached, as felt by the finger applied to the floor of the mouth below the tip of the tongue, the teeth being separated as far as possible by a gag. No pus escaped; there was little bleeding. A wire drain was used and boracic fomentations. The patient was ordered a fluid diet and two ounces of brandy. The temperature rose to 102° at 7 P.M., and the swelling seemed to have increased a little downwards. At 10.30 P.M. the patient had a slight attack of dyspnœa, which was relieved by the administration of an ether draught. Did not sleep until 1 A.M. after fifteen minims of tincture of opium.

July 3rd.—Temperature 99·8°, edges of wound sloughing; thin serous discharge; breath still very foul smelling.

6th.—Sleeps and takes food well; swelling much less; a

little pus escapes from the wound, about half a teaspoonful in twenty-four hours; wound healthy; expectorates a great deal; temperature subnormal.

10th.—Swelling much less; wire drain removed. Can protrude tongue; breath sweet; has expectoration. Fomentations left off and a pad of Gamgee tissue put under the chin. Takes solids.

On the 12th the swelling had gone; wound almost healed. The patient felt quite well, and on the 15th he was discharged well.

ABERDEEN ROYAL INFIRMARY.

A CASE OF TUBERCULAR DISEASE OF MUSCLE AND ONE OF RETRO-PERITONEAL LIPOMA.

(Under the care of PROFESSOR OGSTON.)

IT is somewhat unusual to meet with a tubercular affection of a muscle to the extent described in Case 1. The disease had probably spread upwards from the point of mischief in the past, and was thus a secondary and not a primary tubercular myositis. The second case shows the great difficulty—we may say impossibility—sometimes encountered in diagnosing the nature of an abdominal tumour. Fatty masses in the abdominal wall, or forming in connexion with the omentum, are described in most text-books as likely to simulate ovarian tumours, and various suggestions are made to assist in distinguishing the one from the other. Here we have a rarer condition, one simulating ovarian growth to such an extent that nothing short of exploration of the abdominal cavity after section of its walls could prove the exact character and attachments of the tumour, and the impossibility of its removal. The case is both interesting and important. For the account of these cases we are indebted to Mr. G. W. H. Tawse, M.B., C.M., house surgeon.

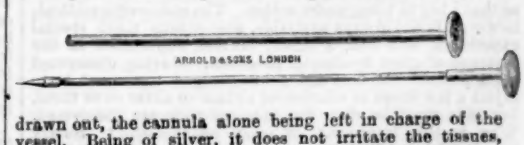
CASE 1. *Tubercular Myositis.*—C. D——, aged six, was admitted into Prince Albert ward on May 18th, 1891, with symptoms of caries of the right tarsus. Two years previously the foot was run over by a cart wheel, but seemed to recover perfectly; six months ago the dorsum pedis began to swell, and continued to do so till about six weeks before admission, when an incision was made and a quantity of pus evacuated. On admission the dorsum of the foot was seen to be occupied by a general spindle-shaped enlargement extending from the ankle-joint to the roots of the toes; at the anterior part was a small sinus, lined by tubercular granulations. A probe passed inwards about half an inch. The movements of the ankle and toes were painless and fairly good. The family history was unimportant. Diagnosis of tarsal caries was made, and on June 6th Dr. Ogston opened up the sinus and scraped out a patch of skin as large as a five-shilling piece, evacuating a considerable quantity of cheesy tubercular material. On passing in a probe, it ran upwards under the skin of the front of the leg for about five inches along what at first seemed a tendon sheath. This track was opened with scissors in its whole extent, and showed a yellow cheesy mass running up the centre of the muscular belly of the extensor longus digitorum, as high as the origin of the muscle. This mass was scraped out, and the wound sutured up, except at its lower end, and drained with catgut plaits. Recovery was uninterrupted; four days after operation the upper part of the wound, which had been sutured, had healed by first intention. The lower wound, on the dorsum pedis, granulated up, and by July 10th had almost healed. The movements of the foot were almost perfect.

CASE 2. *Retro-peritoneal Lipoma.*—J. B——, aged twenty-nine, married, was admitted into Esther ward on June 1st, 1891, with a very large abdominal tumour. Family history unimportant. The patient first noted unusual tumefaction of the abdomen when about two months pregnant with her fifth child in March, 1889. After confinement the abdominal fulness did not decrease sensibly, but continued to grow with moderate rapidity, especially so on the right side, where the swelling was first seen in the iliac region. Notwithstanding its enormous bulk, the tumour never caused pain—merely discomfort and slight dyspnœa from its size. On examination the abdomen was found to be completely filled by the tumour, which was more prominent in the right iliac and lumbar regions, and the abdomen itself showed the boat shape present with ovarian cysts. On tapping the tumour with the finger a very distinct undulating ripple could be detected, and was felt from the side and from the xiphoid cartilage to the pubes as if in a unilocular cyst. Percussion gave a dull note over the whole tumour, except that a peculiar semilunar area of resonance was obtained below the umbilicus, ending laterally in the inguinal regions, and reaching above almost to the umbilicus. Colon resonance was very clear in the right flank, but the left flank was dull. The tumour was freely movable, was not adherent to the umbilicus, and did not move with respiration. The greatest girth of the abdomen, just above the umbilicus, was 48 in.; at the umbilical level, 47 in. No movement of air could be detected round the umbilicus, as if from adherent colon. Vaginally, nothing abnormal could be detected, except that the uterus was fixed. Menstruation had always been regular. The heart apex was beating in the third left space, and the posterior bases of both lungs were dull and the breath-sounds feeble below the ninth rib. The above-mentioned semilunar area of resonance was found to have vanished on subsequent examination twenty-four hours later. Diagnosis of large ovarian cyst, growing for about twenty-seven months, was made, and in consultation with the staff this was adhered to, though an aspirator failed to evacuate any fluid, which was thus considered to be very gelatinous in consistence. On June 11th Dr. Ogston opened the abdomen by a four-inch incision below the umbilicus. No adhesions to the tumour were found, and the mass on presenting in the wound was seen to be covered by the greater and lesser omenta, the tightly stretched transverse colon running across it opposite the middle of the wound. The hand introduced into the abdomen found the tumour to have no connexion with the pelvis; the mass was free everywhere in front. The peritoneum was then opened behind, and the tumour found to be a huge retro-peritoneal lipoma, with very distinct fatty lobules, which were exposed freely for a considerable depth, till it was evident that no fluid or tumour lay behind. Further interference was considered unadvisable, and the wound was closed and dressed antiseptically. On the 15th the wound was examined for the first time, and found to have healed by first intention. On the 19th there was noticed considerable œdema of the left lower limb, evidently from pressure within the abdomen; this considerably lessened under treatment. On the 21st the patient was put on Paget's treatment with liquor potassæ, beginning with five minims thrice daily, and increasing to forty minims on July 6th. Measurements, however, showed the tumour to be still increasing, and the patient was discharged on the 10th.

New Inventions.

NEW FORM OF ACUPRESSURE PIN.

THIS pin is provided with a silver cannula, is bayonet-pointed, and has shoulders against which the cannula fits accurately. The head is flat, so that the thumb can rest firmly on it, and projects a convenient distance from the corresponding end of the cannula. Around the latter is a rim which serves to give a grip to the index and middle fingers when the pin is to be passed, and is also necessary for the attachment of a strong thread of carbolised silk or similar substance, to secure the easy withdrawal of the cannula from a wound in which it may have been left entirely buried. There is a slit at the other end of the cannula to admit of the passage through it of the shoulders of the pin. After the pin has been passed it can at once be



drawn out, the cannula alone being left in charge of the vessel. Being of silver, it does not irritate the tissues, however long it may be necessary to leave it in position; and, being pointless, does not fret them with little stabs on every voluntary or involuntary movement. The pin can be left in its cannula when additional firmness is required. This may be necessary, for instance, when it has been passed deeply through both sides of a wound, and the point protrudes and cannot fret the flesh. The inner surface of

the wound has still the benefit of the unirritating silver coating. A thread thrown around the pin brings the lips of the incision well together, as in a harelip operation. A similar thread could be wrapped round the cannula alone, where it is, as will generally be the case, able to bear the strain, and thus the sharp point of the pin will be accounted for without clipping it off or inserting it in a cork. Messrs. Arnold and Sons are the makers.

W. J. BRANCH, M.D. Edin.,
Basseterre, St. Kitts, W.I. Medical Officer, Hosp. St. Kitts.

NEW EYE INSTRUMENT FOR THE REMOVAL OF FOREIGN BODIES FROM THE CORNEA.

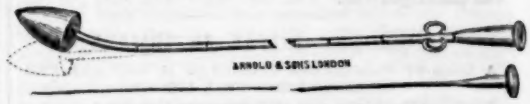
MOST ophthalmic surgeons have experienced some difficulty in removing foreign particles from the cornea, especially if these particles are flat or scale-like and lie deeply in the corneal tissue. Under such circumstances, a good deal of digging has to be done with the corneal spud or spatula to get the instrument well round the foreign body in order to insinuate it beneath it. This effort may cause rupture of Descemet's membrane and escape of aqueous. In all cases it causes considerable destruction of corneal tissue, which may leave some degree of opacity, or cause altered refraction after healing, with consequent impairment of vision. The instrument here figured I have found to be of considerable service in the removal of foreign particles, whether lying superficially or embedded in the corneal tissue. It consists of a fine, rounded, needle-like shaft (A). The terminal end of this (B), which is very fine, is flattened at the expense of the anterior surface, which makes it slightly spoon-shaped. The very tip (C) is minutely hooked. This hook can be distinctly felt as a "catch" when the point of the instrument is drawn across the palm of the hand. After the instillation of a few drops of a 40 per cent. solution of cocaine, the instrument may be used either as a tractor or as an elevator. 1. As a tractor: Here the minute hook fixes in the edge of the foreign particle and picks it out. This is especially serviceable when the foreign body lies deeply in the corneal tissue, as there is thus less risk of causing rupture. 2 As an elevator: By this means the minute hook is insinuated beneath the foreign particle, and it is lifted out of its bed lying in the hook. In either case it is surprising how easily the hook lays hold of and removes the foreign body with the smallest amount of destruction of corneal tissue. The instrument has been made to my entire satisfaction by Messrs. John Weiss and Son of Oxford-street, W. The cost is very moderate.

Corneal hook for the removal of foreign bodies from the cornea.

Inverness. J. WILSON BLACK, M.B. Edin.

A NEW INJECTOR BOUGIE.

GLEET, when not dependent on stricture, is generally due to the presence of granular patches. How are they best discovered and treated? First by means of the endoscope, and again by a modified "bougie à boule," such as that I beg to bring under notice. The endoscopic method, however, is not always available, and entails much special experience, and can, I think, be well superseded in the instance of gleet by simpler processes. Having discovered these patches, the best and acknowledged treatment is to inject a few drops of solution of nitrate of silver on to them, but this must be done the moment they are discovered. Why is this treatment so often unsuccessful? Surely because the patches are not accurately localised; because when localised the mucous membrane is not distended at the moment of injection, so that the solution may be efficiently applied; and, lastly, because the patches are covered by a layer of muco-pus which neutralises the strength of the solution. How are these deficiences of ordinary treatment to be met? Simply by having an instrument which will do for diagnosis and treatment *at the same moment;* to have it made so that its bulb will distend the canal at the site of injection; and to have it with abrupt shoulders which will sweep the patch clear of its muco-pus, or, if need be, mildly curette with additional force the granular areas. How to use it: Pass it in to the bulb of the urethra, and gently withdraw it, injecting at one place or more a few drops of the solution where extra sensitiveness or roughness indicates the probable existence of patches. If the membranous and prostatic portions are to be injected, the instrument may be bent (as indicated) and a smaller bulb used, lest the



contraction of the deep muscles should offer resistance to the withdrawal of the instrument. In a like reason of resistance, the injector ought not to be used in the presence of stricture. I have used it many times, and, taking these precautions, I have found it an efficient means of treating chronic granular urethritis. The instrument is made for me in varying sizes by Messrs. Arnold, and the cut represents it faithfully enough, except that the point appears too acute.

Crouch-end. JAMES MACMUNN.

ON BLOODLETTING IN PNEUMONIA.

To the Editors of THE LANCET.

SIRS,—Having just read the interesting papers of Dr. Ogle and Dr. Wilks in recent issues of THE LANCET, may I be permitted to pen a few lines on cupping in cases of pneumonia? I first awoke to the value of cupping and some other remedies on reading many years since Dr. Hare's paper on "The Revival of some Disused Remedies." During the last ten years I have had a large number of cases of pneumonia in a fairly large country district, and two of them I can particularly recall, one of them being almost *in extremis*.

One case I was sent for to see in June, 1885, about fifteen miles from the village of Rouxville, where I was living, was that of a Dutchwoman about thirty years of age, said to be dying from inflammation of the lungs. On arriving at the house I was told that the patient was dying, and, in fact, the friends were praying round her. Having cleared the room, I examined my patient, who was blue and speechless, and her lungs posteriorly were like a deal board. I lost no time, but cupped her at once freely between the shoulders; in about half an hour she began to rally, and at the end of two hours, when I left, had recovered her voice, and sat up again and began to swallow. The next day I found her rapidly proceeding towards recovery. Internally I gave her antimonial wine, digitalis, and acetate of ammonia, with brandy, broth, &c.

I saw another case in April, 1883, of a Dutchwoman about forty, whom I was called into the country late one night to see. She had typical symptoms of pneumonia, and had been ably and carefully treated by a brother practitioner on the approved modern treatment, but she was getting worse. She was in a very low state, and with a harassing cough, which had kept her from sleeping for five nights. I cupped to about 2 oz. between the shoulders, after which she fell into a sleep which lasted five hours, and from this time she steadily improved.

Just recently, in December last, I saw in consultation a young Dutchman, nineteen years old, who had an obscure paroxysmal pain over the epigastrium, the nature of which was by no means evident, and auscultation threw no light on the subject. However, two days after, I was fetched into the country to see him, and found him almost breathless from the intensity of the pain. I applied a cupping-glass to the præcordium, and drew about two ounces of blood, completely relieving him of the pain, which has never returned.

In my younger days I was a disciple of Todd and Bennett, and scorned cupping-glasses and antimony; now I never travel without my cupping case. I think, on such high authority as that of the two eminent men who have written in your columns on general bloodletting, I shall look up the numbers of THE LANCET my father had, and put them in order.—I am, Sirs, yours obediently,

CHAS. WM. BROWNE, M.R.C.S., L.S.A.,
Formerly Resident Medical Officer of St. Marylebone General Dispensary, London.

Smithfield, Orange Free State, South Africa, June 17th 1891.

THE LANCET.

LONDON: SATURDAY, AUGUST 22, 1891.

Now that the labours of the International Congress of Hygiene and Demography have been brought to a close, we may fittingly reflect upon the lessons that can be derived from this great gathering. Its success must be acknowledged; the value of some of the papers that have been read and the discussions held cannot be doubted. We do not want to harp on the shortcomings more than is absolutely requisite to ensure a more practical management of future International Congresses. It was only necessary to assist at the closing meeting to realise how poor are the results in respect to constructive policy. There are two separate and contradictory points of view taken in respect to such Congresses. According to the one, the Congress is a great success; according to the other, it is little short of a failure. If the object of the Congress was to bring together a vast number of people of various nationalities, and to obtain the presentation of a great variety of papers, for the most part interesting, and written by highly competent persons, then the Congress was a great success. If the object of the Congress was to draw the attention of the outside public to questions relating to hygiene, and to obtain extensive publicity in the press at large; then, again, the Congress has been a great success. But if the object of the Congress was to bring together persons of different nationalities and enable them to exchange ideas, propose and discuss practical measures, then the Congress was comparatively a failure.

Discussions of an international character did not freely take place, firstly, because there were no translations, and, secondly, because there was no time. For some unaccountable reason the Congress met for only sixteen hours instead of, as usual, for thirty hours during the week, and, instead of reducing the number of papers in proportion to the reduced number of hours, there were, as we pointed out before the Congress met, infinitely too many communications. Still, by a judicious use of the pruning knife and by prolonging the duration of the meetings, international discussions might have been held if translators had been allowed to translate. That this could have been done, and done briefly, was demonstrated at the closing sitting when a few translations were allowed, and contributed greatly to keep the audience together for three hours. At most of the sectional meetings the speakers spoke in their own language. Thus the majority of the English present were not able to follow the addresses and speeches of the foreign delegates. On the other hand, the majority of the foreign delegates were in an equally unfavourable position for learning the views put forth by the English delegates. Under such circumstances, a serious discussion or the careful arguing out of a point was impossible. The difficulty became greater when resolutions were proposed; consequently, there were hardly any resolutions carried.

The real fact appears to be that the action of the English organisers was based almost solely on English experience, and local experience is of but little use for international affairs. The first necessity for an International Congress is the presence of competent translators, unless—and this has been done many times before—one single official language is recognised, and then everything must be delivered and spoken in that language. If three languages are selected, everything should be written, printed, and spoken in those three languages, and allowance must be made so as to give twice or thrice the amount of time that would otherwise be necessary for each discussion. The programme must be short where so many translations have to be made; and, so that it should be practical and to the point, it has hitherto been the custom to print and issue clearly explained official reports, printed several weeks before the Congress met. These reports concluded with resolutions, and the adoption or amendment of these resolutions constituted the work of the Congress. Then it could be said that certain subjects had been discussed internationally and certain remedies proposed. The proposals, emanating from the previous International Congresses of Hygiene have formed the basis of legislation in several States; but the present Congress affords to various nations anxious to move in the matter little basis for the preparation of laws on public health. That this would be so was evident from the very first, and therefore many delegates absented themselves from many of the sittings. They also argued that they would learn more in visiting the City of London than in listening, when most of the speeches were delivered in a tongue they did not understand.

The best, however, must be made of what has been done. If the Congress has not put many proposals before the public, it has certainly collected a vast storehouse of miscellaneous information, some of which is extremely valuable. Perhaps the next Congress might make it its mission to group together all this information, and extract from it three or four practical proposals to be discussed as a basis for international sanitary legislation.

Meanwhile a few remarks on the more scientific aspects of the proceedings of the Congress may not be out of place. The interchange of ideas of men of both science and practice at the Congress has been formally completed, some knotty points have been discussed, and many perhaps less important questions have been fully ventilated. Possibly more useful, however, even than the actual discussions have been the opportunities that the members of the Congress have had of seeing one another, of talking together, and of examining each other's methods of work. Each has been allowed to see how much of good there is in his neighbour's work, and what in it is faulty, and in many instances it has been possible to determine what matter of permanent value will remain after the personal factors in the equation are eliminated. We have seen those men whose only desire is to utilise the teachings of science in ameliorating the lot and condition of their fellows, men who would seize on every new detail as something to be applied to every-day life, and who would encourage science because it, and it only, can supply them with fresh points from which to carry on their warfare with poverty and disease and their dire results. Such men wish to know how the bacillus anthracis lives, and how it resists the attacks that are directed against it, because they feel that the ultimate aim of

all those engaged in research on this subject should be to find out how we can render the bacillus anthracis harmless, or how it can be completely destroyed. They wish to know whether burial or burning is the better method of disposal of carcases of animals that have died of anthrax, and they wish to bring into practical application the knowledge that has been attained by *savants*. Your true practical man is not content with being told that burning is the best method of completely destroying the anthrax bacillus and its spores; he knows that in getting the carcase from the field in which it dies to the furnace in which it can be consumed, blood or discharges containing the micro-organism may be left as a deadly trail between the two points. His common sense tells him that it is better to restrict the area of infection as far as possible, and he wishes to find out how far simpler methods may not avail. He is told that the anthrax bacillus, if no spores are formed, soon dies out; and he concludes that, where cremation cannot be applied on the spot, the best mode of disposing of the carcase is to bury it where it falls, at a sufficient depth to ensure the exclusion of as much air as possible. One of the main reasons why the Congress of Hygiene has been convened is to bring out such practical methods of treatment of these and similar subjects.

On the other hand is the man of pure science, the mainspring of whose work is a love of abstract truth, and whose whole desire is to find out new facts, to make new experiments, and to draw accurate deductions from his own and others' observations. It may be thought that these men are sometimes carried beyond their briefs or beyond the limits that facts warrant them in going to; but let it be remembered that any man working continually along any definite lines is apt, through his very enthusiasm, to ignore facts which do not entirely support theories that have been built up on what is no doubt conscientious and careful observation. Such men, however strongly they may repel attacks made on their own pet theories, and however vigorously they assail the position of others who do not agree with them, always endeavour to oppose facts to what they consider are not facts, and, when their own position is carried, are usually the first generously to accept the truths of their opponents, and, on the other hand, to give credit for the work done by their less successful rivals. Had the London meeting of the Congress done nothing but accentuate these points, it would still have justified its inception and its existence. The discussions and the demonstrations in the Section of Bacteriology will, we venture to think, form a landmark in the history of bacteriology in this country. The keen, earnest, but courteous and good-tempered, discussions on immunity, on tuberculosis, and on many allied subjects, have given opportunity for expression of opinion often differing as widely as the poles, but usually accompanied by expressions of personal admiration and regard for opponents, which were evidently something more than mere verbal expressions. In this the workers of the Section were set an admirable example by their President, who not only in this instance, but at all times, has brought forward his new work and expressed his opinions with distinctness and energy, but always with the greatest courtesy and the utmost regard for the feelings of those of his fellow-workers with whose views he has been unable to agree. Almost without exception, the work has been carried on in the same impartial manner, and it is impossible not to feel that these meetings, if they did nothing but bring men in contact with one another, and enable them to observe how each is endeavouring to advance knowledge for its own sake, and at the same time to see how urbane a personality has the man who speaks so courageously for his own doctrines and theories, would not be unattended with definite advantage.

In the museum and laboratory connected with Section II. there was collected ample evidence of the activity that exists in the department of Bacteriology amongst our younger workers. We had a display which would not have disgraced any Congress in Berlin, Paris, or elsewhere; and that we have a demand for bacteriological apparatus, a demand that can be nowhere better met than by the ingenious mechanics of our own country, is evidenced by the display of British-made bacteriological apparatus.

The third point to which we would refer is the stimulus to Comparative Pathology and Veterinary Science that has been given in our midst by the formation of Section III., in which were brought together medical and veterinary men in a way that has hitherto not been attempted; and from the hearty manner in which coöperative work was entered into in the meetings of the Section, it may be anticipated that these departments will more and more throw in their lot together in elucidating some of the interesting but abstruse questions that were brought up for consideration during the Congress. The discussion on Tuberculosis by the combined Sections II. and III. was the first of its kind that has as yet been initiated. There has been an officially recognised combination of forces, and, instead of working at cross purposes, an honest attempt has been made between medical men and veterinarians to arrive at what will be the best for the community, quite apart from any class interests. Of such discussions nothing but good can come, and if, in their endeavour to unite science with practice, those who took part in this discussion have been able to show the necessity for the formation of a department for the regulation of the inspection of cattle, even though no legislation be immediately carried out, much will have been gained.

In the discussion on Immunity the leading authorities of our time took part. METCHNIKOFF and ROUX championed most ably and earnestly the theory of phagocytosis, which theory, however, is somewhat modified, as one might expect, from its original form; whilst BUCHNER, somewhat more metaphysical in his method of treating the subject, but still very interesting, was inclined to accept the more chemical view of immunity.

The work that has been achieved and placed before us must form the subject of careful consideration for a long time to come, but it may be safely asserted that the meetings of the Congress in the two Sections above mentioned have done much to stimulate those who have commenced to work on the lines then laid down, and it may be anticipated that before the next Congress in 1894 such seed will bear good fruit. On the whole, we have no hesitation in congratulating English sanitarians, and men of science in general, on the fact that the Congress held at London in 1891 has been a truly remark-

able occasion, enjoyable and useful to the members taking part in it, and certain to result eventually in permanent profit to the world at large.

WE feel it our constant duty to point out the evils of specialism either in practice or in investigation. It is pleasant to find ourselves supported in this work by one who might possibly be regarded as himself a specialist, but who has been at special pains to decline the compliment. Dr. GOODHART will be recognised as one of those English physicians, like WEST, HILLIER, GEE, and EUSTACE SMITH, who have given powerful aid in elucidating the diseases of childhood, and who are entitled, if any men are, to be considered specialists in this department of practice. Let us hear what Dr. GOODHART says on the attempt to make a specialty of the diseases of children. To the very effort to shatter such an attempt we owe one of the best and most suggestive addresses which has ever been delivered in any section of the British Medical Association. "The thing," he says, "that in the main determined the subject of this address was the one word 'pædiatrics.'" This expression was too much for Dr. GOODHART, and he took most happy vengeance on it in his "pædiatric" capacity. We may almost hope that the pedantic word will be heard of no more. "I hate the word as being the embodiment and the product of specialism, and meeting here to-day as we do, as specialists, it is the aim and object of the few words that I shall address to you to insist that we are not so." Dr. GOODHART very powerfully ridiculed the degree to which this notion of specialism in physicians has taken hold of the less intelligent portion of the public. One lady who was sent to him by a friend was described as "much gone on specialists." "You must know," said his friend, "that this lady has been to me to cure one portion of her body; she has been to an obstetric physician for another part of her person; she has taken a baby to a specialist for nuralings, and now she comes to you as a specialist for a child *about nine*." This limitation of specialism to a certain year of age opens up a new criterion for the specialisation of specialism. When the progress of pathology has advanced a little further and defined the evolution of the manifestations of certain diseases or diatheses, we may expect it to be applied by stupid people to the division of the profession into groups special for each year of age up to threescore years and ten, or even fourscore years, so that all that such persons will have to do will be to ask for the consultant for nine or nineteen, or eighty-nine, as the case may be. But though the satire on the public of Dr. GOODHART'S address was as effective as it was well deserved, it was not the most effective part of his demonstration of the evils of specialism—especially the specialism of "pædiatrics." It only led the way to an almost equal blame of the profession for its tendency to run in grooves, to indulge in fashions, to go to extremes, to believe in new medicines. Under this head came a very natural piece of banter on "that wonderful pilgrimage of last Christmas to Berlin." All such tendencies were denounced as taking us away from the human organism as a whole, and from the "constitutional" element in the production of disease. All men of large and varied experience will agree with Dr. GOODHART in thinking that specialism is injurious in its effects both on the public and on the profession, that the intense concentration of thought on the local process of disease encourages in the trained mind narrow and therefore imperfect views, and in the untrained mind, that of the layman, the demand for an ever-increasing specialisation of specialism. The effect is still more disastrous. With this unintelligent idea in the lay mind demanding a doctor for "about nine" or "for the big toe," there is always a tendency to the production of a supply to meet the demand; and this, if carried to extreme lengths, would, we need hardly say, be morally and intellectually discreditable to the profession, and unworthy of it.

The remedy must come largely from within the profession, and it is supplied in such wide views of disease as constituted the staple of Dr. GOODHART'S address. We recommend, therefore, its perusal, and especially the study of the parts of it which shatter the notion of a specialty in diseases of childhood, and trace what are too apt to be considered the diseases of defined periods of life into the other periods of the same life. The subjects so treated are each worth particular attention as showing most important groups of disease in their evolution and in their continuity, as well as being full of suggestion for their intelligent treatment: e.g., the case of those with concentrated urine throughout life; the case of those with small and ill-developed frontal segments of the brain; the epistaxis of childhood, its dilated pupils; intussusception; the constant passage by some children of pale fæces; the life history of asthmatics; the relations of the rheumatic family of diseases, &c. The address teems with original and suggestive thoughts on those subjects which could only proceed from a general physician who refused to be tethered "to a child of about nine," or restricted to any view of disease which did not include all its manifestations and the whole life of man.

We have no space left to analyse fully the significance of Dr. GOODHART'S destructive attack on specialism in its most common forms. Without necessarily subscribing to all his views of the manifestations of gout, especially his suggestion that the acute rheumatism with which we are too familiar in childhood is often gout, we may beg for this part of his address particular study. In what do the modern notions of gout excel those of the older physicians. TROUSSEAU, with all his French politeness, said that modern physicians know no more of gout than did physicians in the time of SYDENHAM. That proposition is scarcely tenable. But in what way does our knowledge exceed theirs? The answer would be longer than we have room for. But the point of our reply would be that it excels theirs not so much in its specialism as in its breadth, in the wider study of the affections of other parts than those which constituted SYDENHAM'S notion of gout, and of its manifestations at other ages and in other tissues. This is the very antithesis of specialism, and the argument for thoroughness which we commend to our readers, and which has received brilliant support in Dr. GOODHART'S address.

A REMARKABLE action for damages of £2000 for alleged defective lunacy certificates against Dr. ALFRED CARPENTER and Dr. DUKES of Croydon was recently tried at the Surrey

Summer Assizes. The case came before Mr. Justice MATHEW and a special jury, the plaintiff being the wife of a tradesman formerly of Croydon and now absent from the country. The certificates complained of were signed on July 8th, 1888, and on that day, and on the strength of them, the plaintiff was taken to Peckham House, where she was detained for a month. The visits of the defendants were made at the request of the husband, about whose character very different statements were made. On the one hand, it was alleged that he was of drunken habits; while, on the other, Mr. ATKINS of Sutton, who had formerly attended the plaintiff, stated that he had never seen him drunk, and the Judge in his summing-up remarked that no witness had been called from Sutton to show that he had been leading a drunken life while living there. There was unfortunately also much contradictory evidence as to the plaintiff's state of mind at the time to which the certificates refer. Her principal witnesses alleged that she was a good business woman, that they had never seen her violent or excited towards her husband, and that on the day on which she was sent to the asylum she was rational and capable of managing her affairs. The principal evidence to the contrary was that of the three medical witnesses. Dr. DUKES had seen her repeatedly; first, apparently, on Dec. 21st, 1887, at the request of the husband of the plaintiff. On the way the husband gave a sad picture of the "fearful life" he had had since his marriage. He would not enter the house then because it would excite his wife so much. He narrated also an incident in which, as he alleged, the plaintiff tried to stab him in 1884. Dr. DUKES went in alone to see the plaintiff, but she would not answer his questions. She refused to let him feel her pulse and to take his medicine. She called her husband a brute, and said he starved her. On this occasion Dr. DUKES told her husband he would not see his wife again without another doctor. On April 5th, 1888, the husband again reported that his wife was "suddenly taken," and Dr. DUKES was induced to go, and found her worse than before. She said she would see no doctor, and roundly abused her husband. Early in July the husband again asked Dr. DUKES to go. He found the plaintiff in a very excited condition, and she refused to have anything to do with him. The servant told him she thought her mistress strange, and told Dr. DUKES the stabbing story, and Dr. DUKES said "something was said about the plaintiff having attempted to strangle her husband one day with his necktie." The witness seems to have seen the plaintiff on July 6th and 7th, and on the 8th he advised the husband to call in Dr. CARPENTER. Dr. DUKES met him there, and after a hasty introduction retired, leaving Dr. CARPENTER with the plaintiff and her child and servant. Subsequently her husband came in, "whereupon her face became utterly changed and contorted," and she burst out into a torrent of invective against him. She retreated when Dr. CARPENTER wanted to feel her pulse, but subsequently he found her head felt hot, and from the temporal pulse inferred that there was no fever. She declared that she had been sleepless for several nights in consequence of the brutality of her husband, had had headaches, and that she suffered at her monthly periods. From the way she looked at her child, and her great affection for it, he feared there was danger to both of them at the time of her "periodical attacks." He was with her at least twenty-five minutes. He said the husband was certainly sober that day. Mr. ATKINS of Sutton was a very important witness in the case on the side of the defence. He had attended the plaintiff, when she lived at Sutton, in her confinement, and in consequence of her suffering from mental worry, caused by business, he called in Dr. SHAW, medical superintendent of the asylum at Banstead. Mr. ATKINS gave particulars of the stabbing in 1884, and said it was impossible that it could have been self-inflicted. The plaintiff said it occurred while she was taking a knife from her husband. He testified to the periodical occurrence of the attacks, lasting several days, while the plaintiff was his patient, and to her being in the intervals a bright, clever, and intelligent woman. He declined to say whether the plaintiff was out of her mind when Dr. SHAW saw her.

Such was the nature of the case and of the evidence offered. The counsel for the plaintiff made a great point of there having been no member of the medical staff of the asylum called to support the theory of insanity, and of the reasonable nature of the letters written by the plaintiff to her husband the day after she went to the asylum. The question of the insanity of the patient was not really raised in the trial, as Dr. CARPENTER points out to us in a letter. The counsel for the defendants, in the exercise of his discretion, confined himself to proving *bona fides* of conduct. The jury, naturally enough, gave the plaintiff the benefit of this fact, and came to the following verdict: "We find that the plaintiff was not proved to be insane on July 8th, and that the certificates given by the doctors were not due to any want of care, or (to use his lordship's expression) any want of due care and skill, on the part of the defendants."

Mr. Justice MATHEW explained that this was a verdict for the defendants. But in such a case as this, where a plaintiff is without the means of paying the costs awarded, this is poor consolation, and raises a fear that the much-boasted protection that was to be conferred on medical men by the Act of 1890 is delusory. The counsel for the plaintiff made a point of the fact that Dr. DUKES, in his certificate, had alleged that he had made a careful personal examination on the 8th. This error of date Dr. DUKES admitted at once, as, though he had seen the plaintiff on the 8th, it was only for a few minutes. But he had seen her carefully on each of the two previous days.

One lesson we can draw from the case is to advise medical men under the Act of 1890, as under previous ones, to be exceedingly slow and reluctant to sign certificates. There is another. We think Dr. DUKES would have done well to refuse to act in this case at all without the concurrence of a medical man who knew the patient from having previously attended her. It is an excellent provision of the new Act which requires the usual medical attendant to certify *if possible*. It is true that the usual medical attendant in this case lived in another town. But, even so, it would have been well had he been consulted. Having said this, we

must emphasise the fact that Mr. ATKINS declined to give evidence for the plaintiff, and did give evidence for the defendants. The judge rightly pointed out the total absence of motive on the part of the defendants, and the extreme improbability of men of their standing and experience acting recklessly or without a careful examination. They could have no conceivable object in sending the plaintiff to an asylum but for her own good and that of others. Possibly they would have acted with more selfish prudence in temporising a little. But that constitutes no reflection on their good faith, and yet they have been subjected to a costly and prolonged action. No wonder that Dr. CARPENTER expresses, in a letter to us, his intention in future not to fill up certificates in lunacy, or act as a magistrate in such cases, and that he advises his professional brethren to adopt a similar course.

AFTER a long and protracted discussion, both before and subsequently to the publication of the report of Lord CAMPERDOWN'S Committee, we are glad to be able to congratulate army medical officers and the medical profession on the promulgation of a new Warrant for the Army Medical Staff, which we publish *in extenso* in another column. Apart from the remodelling and alterations necessary to adapt the provisions of the old to the new military titles and designations of the present Warrant, there are two changes of great importance to the department. The concessions which Mr. STANHOPE expressed himself willing to make he has embodied in this Royal Warrant of August, 1891.

Whatever may be the views held regarding the new titles, there cannot be any difference of opinion as to the great boon which has been conferred upon officers of "our medical staff" in the matter of sick leave. Medical officers are now placed on the same conditions as those laid down for regimental officers in regard to sick leave of absence on full pay. There was no gainsaying the justice of the medical officers' claim to a privilege which regimental officers have long enjoyed in this respect; in fact, their claim for consideration was greater than that of other officers, seeing that they were exposed to greater risks of sickness from various causes. But the medical officers' claims were not discussed on their merits; the objection was a financial one. Regimental and other officers were numerous, and those who happened to be sick could be spared; whereas there were relatively few medical officers, and they —sick or well—could not be spared. This was certainly not very fair, nor was it very logical. The liability to an attack of sickness does not depend upon a man belonging to a class which is numerically weak or strong, though the smaller the number the harder the work, as a rule, and the greater the liability to contract disease. In a vast majority of cases the sickness and inefficiency among medical officers have arisen out of circumstances in which they found themselves placed by no choice of their own. Be this as it may, however, the concession is a good and real gain to the medical service, and we heartily congratulate medical officers on obtaining it.

But the great thing on which medical officers had set their minds was that their military rank should be a fixed definite, and substantive one; and this Royal Warrant unquestionably recognises and concedes that principle. "The substantive rank of the officers of our Medical Staff shall be as follows: These ranks shall carry precedence and other advantages attaching to the rank indicated by the military portion of the title" (with the exceptions laid down).

If some of the new composite titles be somewhat too lengthy for facility of use in official and social life, they nevertheless carry with them the corresponding military rank in such a way that there should be no room for mistake. Mr. STANHOPE has followed the recommendation of Lord CAMPERDOWN'S Committee in adopting composite titles. We earnestly trust that medical officers will find their position for the future secure and satisfactory to themselves and all other branches of the service. Some persons apparently entertain a misgiving as to the right under this Warrant of surgeons-major to retire as hitherto on completing twenty years' service, but we feel convinced that there cannot be any intention of withdrawing or altering this provision.

Annotations.

"Ne quid nimis."

THE INTERNATIONAL GEOGRAPHICAL CONGRESS.

THIS assemblage of the votaries of geography in all its bearings concluded its sittings on the 14th inst. at Berne, and its recorded transactions, shortly to be made public, will mark a distinct advance on its predecessors in the interest of the papers read, and in the ability with which they were discussed. As anticipated, climatology had many sidelights thrown upon it—medicine having really as important a stake in our daily extending knowledge of the world and its resources as statecraft with its colonial development, or war, with its acquisition and delimitation of territory. The exhibition in connexion with the Congress was peculiarly rich in chartography and in the literature relating to climate and to atmospheric vicissitudes, in both of which departments, however, Great Britain was by no means so well represented as she was entitled to be. It is to be hoped that if the recommendation of the committee that the next place of meeting be London should take effect, a better show will be made of the geographical publications of a nationality which in many important respects has been a pioneer in maritime and inland exploration. *Au reste*, some interesting facts were made prominent in the exhibition. Swiss chartography, a really brilliant feature of the collection, owes its origin, it appears, to a physician, Dr. Conrad Fürst of Zurich, whose map of Switzerland, constructed between the years 1495 and 1497, was the first ever made of the Helvetian country. From Fürstenau to Seckingen, and from Bregenz to Lausanne, it gives an accurate view of the mountains and lakes, and is, on the whole, a surprising instance of correct chartography at a time when the art was but in its infancy. Curiously enough, the south is placed at the top of the map and the north at the foot—an arrangement reversed by the modern map-maker, who, however, as was said at the Congress, has only convention, not science, to plead for his innovation. From good old Dr. Fürst's *tentamen geographicum* to the magnificent coloured maps of the Siegfried Atlas now publishing by the Federal Topographic Bureau, and of which the instalments already issued were a chief attraction of

the exhibition, there is a stride indeed. But there is a direction in which geography may improve even on this latest addition to the "mystery of map-making." A climatological atlas, giving the prevalent air currents and the other indications affecting the salubrity of the region, is still a desideratum, the supplying of which by his professional compatriots would be a worthy tribute to the Zurich physician's memory, as exhibiting a legitimate development of the studies in which he was a veritable pathfinder.

DEATH UNDER CHLOROFORM.

AN adjourned inquest was held by Dr. Danford Thomas on the 17th inst., at the Paddington-street Court, touching the death of a young man who died at the Middlesex Hospital on August 10th whilst undergoing an operation. The deceased, whose age was about thirty years, attended at the hospital on the previous Saturday, suffering from a subfascial abscess of the neck. He was advised by the house surgeon to have it opened, but declined to have it done on that occasion. Two days later he returned with his wife, having consented to undergo the operation. This was done in the casualty room. Almost as soon as he was under the influence of the anæsthetic he turned pale, and in spite of every effort at resuscitation he died. On the first day of the coroner's inquiry the friends of deceased complained (1) that chloroform was given without the patient's consent; (2) that the administrator did not take the precaution to examine the condition of the heart; (3) that the time was inopportune, inasmuch as the deceased had had two full meals the same day. A post-mortem examination was made by the hospital authorities, with the result that no organic disease was detected. The heart appeared healthy, both as regards muscular substance and valves. In order to satisfy the friends, and to secure a searching inquiry, the inquest was adjourned. A second inspection was made of the body by Dr. Tanner, on the nomination of the deceased's relatives. The medical superintendent and Mr. Pepper (of St. Mary's Hospital) watched the case in the interests of the hospital. No new facts were brought to light. The stomach contained only a little fluid, thus negativing the allegation that its replete condition conduced to the fatal event. As regards the charge of administering the chloroform without consent or knowledge, it was given in evidence that as a matter of routine, where a deep abscess of the neck required opening, an anæsthetic was highly desirable; and further, that the man must have been aware that he was about to take chloroform, and have been willing to do so, the popular idea of immediate insensibility ensuing being a totally erroneous one. The coroner pointed out that the choice of the anæsthetic—ether or chloroform—was essentially one for the medical men. From an impartial consideration of all the facts elicited at the inquest we fail to see that the hospital representatives were in any way to blame. The patient was to all appearance a healthy young man. The state of the pulse betokened no cardiac derangement, and the necropsy revealed no abnormal condition. Unfortunately, in this instance the chloroform manifested its lethal potency, and in a case, too, where there was every reason to believe the inhalation could be resorted to with safety. It is easy to cast blame on the innocent authors of a calamity; but we doubt not the institution in question will to all unprejudiced minds be held to have passed through its trial without discredit.

THE CUSTOMS AND INLAND REVENUE ACT.

MEDICAL OFFICERS OF HEALTH are doing good service by refusing to give certificates under the Customs and Inland Revenue Act unless houses come up to the standard which is required. The London Freeholders' and Leaseholders' Defence Association have just presented a memorial protesting against the action of these officers, and, if the newspapers give a correct account of the contents of the memorial, it is clear that the Association and the medical officers read the Act very differently. The former holds that its intention was to exclude from its benefits slum property only; the medical officers evidently think that a still higher standard is required to warrant exemption from house duty; and we feel satisfied the latter are right. We trust that the health officers will persevere in the line they have taken, and we are glad to note that there is no appeal from their decision.

LIFE ASSURANCE AND THE MEDICAL PROFESSION.

MR. F. W. LOWNDES has recently presented to the Liverpool Medical Institution a paper on the Value of Life Assurance to Members of the Medical Profession, which we are glad to see in the form of a reprint from the *Liverpool Medico-Chirurgical Journal*. The subject is an old favourite with Mr. Lowndes, and his advocacy of it loses nothing in force by reason of its having been long before his mind. But at the present time we doubt not that he finds his hearers much more ready to understand his point of view than when he first addressed them on the subject. Many circumstances beside the steps which have been recently taken by the Editors of THE LANCET have conspired to bring home to the minds of medical men both the importance of life assurance as a protection to their families and the extent of the facilities which they possess for obtaining assurance upon such terms and in such forms as render it suitable to their requirements. All these points receive due notice in Mr. Lowndes' paper, which cannot fail to contribute to the diffusion of the good impression which has been already produced.

COCOA-NUT FIBRE IN THE STOMACH.

DR. R. S. STEWART has placed on record a curious case of foreign material in the stomach of a lunatic. The patient was a boy of twelve, who until the commencement of his fatal illness had enjoyed good health, and was in fair bodily condition. He somewhat suddenly became listless and apathetic, lost his appetite, and began to be sick. There was no apparent enlargement of the abdomen, but there was a hard, inelastic tumour over the site of the stomach. The bowels became totally inactive, vomiting increased in severity and frequency, the temperature rose to 100° F., and death occurred seven days from the onset of the illness. At the necropsy the stomach contents were found to weigh 18½ oz., and these consisted of three separate solid masses, each about the size and shape of the closed fist, and several smaller pieces were wedged in between the larger ones. They consisted almost entirely of cocoa-nut fibre, with a few strands of dried grass. The fibres had assumed a dense felted arrangement, and no lamination was observed. There was also an obstruction in the ileum, found to be a banana-shaped mass of the same composition—the lateral fibres projecting downwards and outwards into the gut in such a way as to prevent its passage downwards. The mucous membrane of the stomach was only slightly congested, very rugose towards the pyloric end; that of the ileum was acutely inflamed above the obstruction, and the Peyer's patches both above and below it were considerably altered. The case, Dr. Stewart says, affords an illustration of Mr. Treves' remark that bodies may remain for years in the stomach or intestine without causing any mischief, but that when so lodged they may at any time induce changes leading to a fatal result. From inquiries made after his death, it would seem that the patient was accustomed to eat, among other

things, cocoanut fibre, but that for three years before his death he had entirely given up the habit. Apparently a piece of the collection in the stomach had somehow found its way into the intestine, and had there set up the condition which caused death.

USE OF HYOSCINE.

IN a paper in the *Journal of Mental Science* Dr. Lionel Weatherly has a very strong word to say in favour of hyoscine in certain conditions. There is little doubt that his warning against mistaking it for hyoscyamine is not unnecessary, and it is now high time that it should be recognised that in these two substances we have to deal with alkaloids of very different characters, from the point of view at least of the clinical physician. Dr. Weatherly believes strongly in the powers of hyoscine as a mental alterative. He has found it particularly useful in that form of mental disturbance which renders the patient violent and abusive, restless and domineering—a nuisance to everyone who has anything to do with him. Under the administration of repeated small doses of hyoscine such a patient becomes a changed man. Violence and abusiveness give place to an amiable politeness, and instead of indulging himself in the free exercise of an extensive if somewhat shady vocabulary, the patient subsides into silence. Those are the cases in which Dr. Weatherly finds the drug most useful, and in which he believes it acts as a true mental alterative. It is also, he says, a useful drug in delirium tremens, and in other diseases in which tremor is a marked symptom, such as disseminated sclerosis, and it has the great advantage of being in most circumstances quite safe. It is not without reason that Dr. Weatherly enters a word of warning against its indiscriminate use as a sudden and powerful hypnotic; yet there would appear to be no doubt that it finds its greatest, and probably its most useful, application in the treatment of maniacal violence and noisiness, and that, at least in ordinary hospital work, it is a drug for emergencies.

THE PRODUCTION OF EXTREME COLD.

ACCORDING to a notice in the *Monthly Magazine of Pharmacy* for August, M. Raoul Pictet, who has for many years been working upon the subject of the liquefaction of oxygen, hydrogen, and other gases, has recently found that when a mixture of the anhydrides of sulphurous and carbonic acids is liquefied by cold and pressure the fluid thus obtained is more manageable than the carbonic acid ether mixture just referred to. It produces by its rapid volatilisation an extremely low temperature, and for purposes of this kind is now known as "Pictet's fluid." Aided by a mechanical pressure of from four to ten or twelve atmospheres—for most purposes one of about nine is amply sufficient—gaseous nitrous oxide is readily liquefied by the cold resulting from the evaporation of "Pictet's fluid." Then by the use of this liquid nitrous oxide a yet more intense cold is obtained, and under pressures of from 120 to 200 atmospheres hydrogen, oxygen, nitrogen, and common air are rendered fluid. Fluid air, the temperature of which is not much above 200°C., is described as a blue liquid, and on letting a little escape a distinctly blue cloud is formed, disappearing very quickly as the vapour diffuses in the air.

THE LOCAL TREATMENT OF DYSENTERY.

PROFESSOR H. C. WOOD of Pennsylvania University points out that the form of dysentery ordinarily observed in that climate is essentially a local inflammation, and should therefore be amenable to local treatment.[1] The ordinary methods owe much of their value to local action. Several years ago he published a series of cases of chronic dysentery successfully treated by enemata of nitrate of silver (half a drachm to one drachm in two or three quarts of water), and this method has been also advocated by others (notably by Dr. Stephen Mackenzie in this country). In acute dysentery, Professor Wood finds large enemata containing two or three drachms of subnitrate of bismuth more efficacious than the administration of the drug by the mouth; and in severe cases this treatment may be preceded by free irrigation of the colon with cold water. The local employment of ice as a suppository, renewed every three to five minutes during half an hour to an hour, is very useful when the lower part of the colon is involved. For severe tenesmus iodoform suppositories are often preferable to opium. Where there is much bleeding, suppositories of ergot (twelve grains of extract) and iodoform (four grains) every two hours seem to be of value. He does not advocate these local measures as a substitute for the use of mercurials, purgatives, ipecacuanha, &c., but rather as an adjuvant to such treatment.

[1] University Med. Mag., Aug. 1891.

EDINBURGH MEDICAL MISSIONARY SOCIETY.

THE August number of the *Edinburgh Medical Missionary Society's Paper* states that there seems to be quite a wave of missionary interest sweeping over the churches at the present time, making itself felt especially amongst the young. No less than seventy young persons of both sexes have within the last three or four months written to the Society expressing their desire to become medical missionaries. The Society has appealed for £10,000 as a jubilee memorial fund, to enable it to extend the Livingstone Memorial Training Institution and Dispensary in the Cowgate, and to provide for the education and training of the yearly increasing number of candidates. Of this amount more than £4000 have been subscribed. The directors are most anxious to complete the £10,000 by November, when the Society will enter upon its jubilee year. As East Africa is coming into considerable prominence, it is interesting to learn from an article in the paper that thirteen of the former students of the Society are now at work there. In addition to these, four others have died at their posts. A letter from Dr. Mather, from Lake Tanganyika, describes the work as growing rapidly.

TUMOUR OF THE CORPUS CALLOSUM.

THE history of a case in which a sarcoma was found situated at the knee of the corpus callosum is related at length in the *University Medical Magazine* by Dr. Charles Oliver. The patient was a woman of forty-three, who came under observation first in 1887. She then complained of great lassitude and disinclination for even slight exertion. She also had some impairment of vision in the left eye. In 1888 her sense of smell became disturbed, and a year later was completely lost. Her taste, also, was impaired. She gradually became more and more of an invalid, was disturbed by hallucinations of sight—the hallucinations concerning themselves with snakes, alligators, and such creatures. She also began to imagine that she felt them crawling about her. Her sight was now much impaired. The left eye was almost completely blind, vision in the right was disturbed, colour-sense being impaired in a manner usually associated with hysteria. The left pupil was immobile to light, but no changes characteristic of intracranial disease were found in the fundi. There was no paralysis of any kind. She gradually became worse. There was no vomiting or vertigo, but hearing on the left side was impaired. Then she improved considerably, and was able to take long walks. But this temporary improvement soon gave place to gradually increasing weakness, she became comatose, and died about

three years from the commencement of her symptoms. At the necropsy a spindle-celled sarcoma was found growing in the knee of the corpus callosum. It was more extensive on the left than the right side, and had pressed downwards so as to interfere with the optic nerves. Considerable pressure had been exerted upon the uncinate gyri, and to this the author ascribes the special sensory disturbance which was present. The case is an interesting one, presenting as it does so many so-called hysterical symptoms, which were no doubt dependent upon the existence of a large intracranial growth.

TRADE IN CHILDREN'S POWDERS.

AT an inquest held recently on the body of a child, the mother stated that she bought three powders from a chemist, one of which she gave the deceased and the others to her two other children. They were all afterwards taken ill with vomiting and diarrhœa. A medical witness who had attended the deceased said the stomach and intestines were much inflamed, and the cause of death was exhaustion from diarrhœa and vomiting, which was set up by the inflammation, but whether the latter was the result of an irritant poison or natural causes the examination failed to show. In his opinion the powder was too strong. The mother said the chemist did not ask as to the nature of the complaint, only the ages of the children, and she was sure she gave the powders according to instructions. The chemist said he made these powders in batches of five or six gross. They contained no irritant poison, only one grain of calomel, a little jalap, and sugar. Medical men will not admit that such a powder in the tender intestines of an infant of eleven weeks is not an irritant. If unintelligent parents think it part of their duty to deal out powders to their children all round—and we fear enormous harm is done in this way—chemists should at any rate supply them with more harmless materials.

"BUMBLEDOM AND DISEASE."

UNDER the heading "Bumbledom and Disease" a number of letters have appeared in *The Times* discussing the condition of the drains of a particular house in Kensington, and of house drainage in that parish generally. The facts are very simple. A gentleman took a furnished house in Kensington; a case of diphtheria occurred in the house shortly afterwards, and the drains were found to be faulty, hence the conclusion was come to that the defective drains had caused the disease. Those who have knowledge of the etiology of this disease are aware that this conclusion is not fully warranted by the facts as they are stated. The relation of diphtheria to structural defects does not stand on a very sure footing; but it is the fashion now to associate the one with the other, and persons letting furnished houses must expect to be judged by the prevailing sentiment. Hence, to let a furnished house is at the present time a dangerous procedure unless the house drains are watertight and constructed according to modern requirements, for the tenant would in all probability be able to recover damages from his landlord in a court of law if a case of diphtheria occurred in a badly drained house which was let furnished. A correspondent, writing to *The Times*, expresses the opinion that the leasehold system is responsible for much of the bad drainage which is to be found in London. A tenant of moderate income takes on lease a house the drainage of which is imperfect, and is not able to incur the expense of reconstructing it. Hence, houses are often left as they were originally built. It is often argued that the leasehold system does not press hardly on the tenant, for the landlord is able to let the house at a lower rent if he is relieved of these burdens. The fact remains that many houses have been let on lease before drainage had come to assume its present importance, and hence the leaseholder is obliged to incur all the expenditure which is necessary to improve the sanitary condition of the house in this respect. This, indeed, is a good illustration of the way in which the leasehold system works. It is natural to human beings to endeavour to improve their surroundings, and the landlord is benefited by this tendency. The times undoubtedly press hardly on the leaseholder, and the lesson which should be learnt is that no one should take a house on lease without full knowledge of its condition.

THE PATHOLOGY OF BURNS.

OUR readers will be gratified to find in another column a contribution on the pathology of burns from the pen of Sir Wm. Jenner. Of all his numerous writings which advanced the boundaries of medicine, there are none which more admirably illustrate that accuracy in observation and love for scientific truth, which are their uniform characteristics, than the one which we publish this week. It is pleasing, too, to think that one who has borne the burden and heat of the day, and deservedly attained to the foremost position in our ranks, should, whilst enjoying his well-earned leisure in retirement from active professional life, be not unmindful of pathological problems, to the solution of which he has contributed so much. His present paper speaks for itself, but we may reserve to another occasion a detailed consideration of the important matters contained in it.

THE EFFECT OF KIDNEY DISEASE ON THE STOMACH.

THE effect of chronic disease of the kidneys on the stomach and its functional activity forms the topic of a recent graduation thesis by Dr. Kravkoff of the Military Medical Academy, St. Petersburg. Tabular results in twenty-six cases are given. The general acidity was estimated, also that due to free hydrochloric acid. The rapidity with which iodide of potassium introduced by an œsophageal tube was absorbed, so as to appear in the saliva, was also noted. The motor force of the stomach was estimated (1) by Ewald's method, which consists in noting the time which elapses between the administration of salol—which does not decompose until it enters the duodenum—and the appearance of salicylic acid in the urine; (2) by Leube's method, which consists in finding the time in which the stomach empties itself of a certain definite meal by repeated examinations with the œsophageal tube. Lastly, also, the amount of pepsin was estimated by noting the time required by the gastric juice alone, with additional pepsin, with additional hydrochloric acid, and with the addition of both pepsin and hydrochloric acid, to dissolve meat. In the majority of the cases the general acidity was normal, while that due to free hydrochloric acid was diminished. In a few cases the hydrochloric acid acidity was normal, and the general acidity was diminished. In most of the cases the highest degree of digestion was one corresponding to that which Ewald calls the second stage—that is to say, which exists during the second half hour of the process, when the hydrochloric acid is beginning to manifest itself in its free state, and when the lactic acid fermentation is abating. In most of the cases there was a diminution in the amount of the non-organised ferments—pepsine and ptyalin. The absorptive capacity of the stomach was generally found to be normal. The motor force of the stomach was not apparently lessened, except where the patient had become extremely weak, or where a catarrhal condition was in existence. Subacute and chronic attacks of uræmia did not always prevent the secretion of a normal amount of hydro

chloric acid in the gastric juice, nor did they necessarily interfere with the due digestive power of the latter. It would thus appear that the digestive functions of patients with chronic Bright's disease need not necessarily be very seriously impaired, and, indeed, in many cases they may be affected very slightly, if at all. These researches are instructive, but unfortunately they required constant recourse to the œsophageal tube, which is by no means pleasant for the patients, and may sometimes be fraught with danger; thus, in some of the reported cases the first time the tube was introduced an acute attack of uræmia ensued, a result which should make clinical observers somewhat cautious as to such experiments in cases of nephritis.

MEDICAL LEGISLATION AT THE CAPE.

IN a petition against the final portion of the eighteenth clause of the Medical Bill, twenty-two of the medical practitioners of Cape Town and the suburbs express a very strong protest against the power given to the governor to grant a licence admitting as a medical practitioner any person of whose skill and experience he is satisfied, and who, before the passing of the Act, may have been for twenty years and upwards continuously practising as physician and surgeon in the colony. This is a serious power to entrust to lay hands, and might lead to the admission of many to the profession who would do it no credit and the public no good. There seems no excuse in the circumstances for such an exercise of irregular authority, and it would be unfair to men who have qualified in accordance with a medical Ordinance in existence for sixty years. We hope the proposal will be reconsidered.

THE DRINKING-WATER OF FLORENCE.

AN Italian correspondent writes:—"Florence was a great sufferer last year by the falling off in the number of the foreign visitors and sojourners, on whom she depends, if not for her livelihood, at least for her prosperity. From Her Majesty Queen Victoria down to the personally conducted tourist, the expected arrivals held aloof; and some notion of what their absence meant to the Florentines may be inferred from the fact that the receipts at the door of the great picture gallery of the Ufizi were for the season more than 16,000 francs less than for the same period in 1889. The fever epidemic, though never so severe as reported, was still alarming enough to make the outside world uneasy as to the sanitary condition of the city, and the suspicion that fell on the drinking-water, at the best of times below the ideal standard, was confirmed by official examination, which has since proceeded to the next stage of such inquiries, and busied itself in devising means for preventing such deplorable results of municipal shortsightedness in future. A commission charged with the study of the Anderson system of purifying water has for some time been at work, and its conclusions have just been embodied in an elaborate report now before me. Basing itself on the fact that it will be several years before Florence can provide herself with potable water from sources not yet found, through aqueducts not yet constructed, the commission puts the pertinent question: 'How is the city, with its inhabitants native and foreign, to be supplied with that prime essential in the meantime' To this it replies: 'By adopting and vigilantly safeguarding the best system yet devised for purifying the water already available.' That system it finds in the Andersonian—a system to be rigorously applied so as to make the water not only innocuous, but actively health-giving, before its distribution for home-consumption. An application to the 'Revolving Purifier Company' to procure from it the required apparatus with a view to experiment was accordingly unanimously voted; and should the results prove satisfactory, the apparatus will be forthwith introduced and worked to secure a supply of 'aqua-potabile' to Florence, until the greater scheme of bringing in water from entirely new sources by a new system of aqueducts shall have found its consummation. It is impossible not to approve this resolution of the commission. More than other Italian cities, Florence is in financial difficulties—the legacy of that shortlived pre-eminence she had as intermediate capital between Turin and Rome. She is sorely in need of money even for the commonest municipal wants, and has had to cut down her working *personnel* far below the point at which it can be properly effective. Her postal service, for example, is an unceasing source of vexation and loss to the English-speaking resident. But necessity has no law, and her present course is her wisest: to do nothing with premature despatch, but to make the best of such means as she possesses for the well-being of her population and for the continued countenance of such visitors as she is even now expecting—Mr. Gladstone in the late autumn, and Her Majesty Queen Victoria in the ensuing spring."

HONOURS TO MEDICAL MEN.

ON Tuesday the following honours were bestowed on members of the medical profession at a private investiture held by Her Majesty at Osborne:—The Director-General of the Army Medical Department, William Alexander Mackinnon, F.R.C.S.Ed., C.B., received the honour of knighthood, and was invested with the riband and badge of the Order of the Bath of the Second class; on Brigade Surgeon Robert Waters, M.D., and Principal Veterinary Surgeon James Drummond was conferred the Companionship of the same Order; and on Surgeon-Major Thomas Holbein Hendley, L.R.C.P., &c., was conferred the Companionship of the Order of the Indian Empire.

THE BRITISH PHARMACEUTICAL CONGRESS

THE British Pharmaceutical Conference met at Cardiff during the past week under the presidency of Mr. W. Martindale. The President, in his address, referred to the position of the pharmacist in relation to the public and the medical profession. He said: "The advances made in chemical science during the present century, and the experimental investigations of recent physiologists and therapeutists, tend to prove that the physiological action on the animal system of the simpler chemical compounds in many cases is a chemical and physical action of the elements of which they are composed, modified to some extent by what constitutes life; and that the elements themselves act somewhat in accordance with what might be expected from their chemical alliances, and the positions they occupy in regard to the periodic law of Mendelejeff. In the more complex organic substances there is also a marked connexion between physiological and chemical constitution." The meetings of the Conference were closed on Wednesday. Edinburgh was selected as the next place of meeting, and Mr. Stanford, a Scotch member, was appointed the president.

ANOTHER FATAL LAMP ACCIDENT.

A FRESH illustration of the danger attending the use of spirit lamps is afforded by a fatal accident which occurred in Bayswater a few days ago. In this case a lady, while attired in her dressing-gown, was burnt to death by the lamp used to heat her curling tongs. It is difficult to say which among several circumstances is here specially accountable for the unfortunate occurrence. The lamp employed, if constructed like others of its class, which are flat, broad based, and somewhat heavy, was not a particularly dangerous one. A loose dressing-gown was cer-

tainly not the safest upper garment for the occasion, but what lady would think of performing her toilet in any other dress? The blame, we take it, should rather be borne by the custom of self-adornment which brought into connexion the several factors in the final catastrophe. But fashion, we fear, will not easily be warned by any argument, however rational, which crosses its caprice. In any case, some reform of the spirit lamp, which will either provide sufficient heat without naked flame or will guarantee self-extinction in case of an accidental upset, may worthily occupy the inventive skill of enterprising manufacturers.

THE HEALTH OFFICERSHIP OF LEICESTER.

ON Wednesday last the County Council of Leicestershire decided not to appoint a medical officer of health for that county, but agreed to expend £50 per annum, if necessary, in collecting the health reports of the various districts. Also to call in an expert for advice whenever circumstances demanded it. Lord Basing, in his remarks at the recent Congress of Hygiene, was fully justified in saying that county councils had not risen to the responsibilities of their position, instancing, among other things, how few had even appointed a health officer.

ARMY MEDICAL REPORT FOR 1889.

THIS report has just been published, and will claim our consideration more fully hereafter; but we may, in the meantime, intimate that the average strength of the troops serving at home and abroad in 1889, as computed from the returns furnished to the Army Medical Department, was 199,448 warrant officers, non-commissioned officers, and men (exclusive of certain corps which are recruited locally in the colonies); the admissions into hospital in this force were 198,823, and the deaths 1831. The rates represented by these numbers are, for admissions into hospital, 1006·9, and for deaths 9·17, per 1000 of the average annual strength, the latter being calculated on a strength of 199,715, which includes detached men (1267). Speaking generally, the figures are satisfactory for 1889 as compared with those of the previous ten years. The death-rate for the United Kingdom was 4·57 per 1000 in 1889 as against a ratio of 6·40 per 1000 for the ten-year period from 1879 to 1888. Egypt shows a mortality ratio of 12·24 per 1000 for 1889, as compared with that of 26·72 for the previous six years. India and Ceylon show similar death-rates in 1889—viz., 17·12 in the former, and 17·45 in the latter.

PERIPHERAL NEURITIS IN TABES.

PROFESSOR EICHHORST, of Zurich, contributes to Virchow's *Archiv.* (Bd. cxxv., Hft. 1) the record of a case of "tabes dorsalis cervicalis," in which Westphal's symptom (the absence of knee-jerks) was present. He points out that absence of the patellar tendon reflex in tabes is generally assumed to be due to the damage done to the reflex loop at the posterior root zone in the dorso-lumbar region of the cord, and that this localisation of "Westphal's area" has been confirmed by many positive as well as negative facts especially connected with the earlier stages of the affection. Amongst the latter group are to be included those cases where the tabetic symptoms are first manifested in the upper extremities or are limited to them. There are but few such cases that have been examined after death, but clinical records of some show that whereas in them the tendon reflexes of the arms may be absent, the patellar reflex may even be exaggerated. One case with post-mortem examination recorded by Martius showed that the degeneration of the cord was mainly limited to the cervical region, and that in the lumbar region, "Westphal's area," was intact. The case which occurred in Professor Eichhorst's clinic was briefly that of a woman fifty-four years of age, admitted for right hemiplegia, due to cerebral hæmorrhage. The absence of knee-jerks led to the discovery of the fact that she had been for some time previously suffering from tabetic symptoms. The patient died in a few days from the large hæmorrhage, which had destroyed the left lenticular nucleus and penetrated into the lateral ventricle. An examination of the spinal cord (after hardening in Müller's fluid) showed complete degeneration of the posterior column in the cervical region, and extending thence into the upper two-thirds of the dorsal region, but below that level the cord was healthy. Here, then, was a case which apparently confuted the generally admitted fact of the alliance between "Westphal's symptom" and disease of the area in the dorso-lumbar region. Fortunately, says Professor Eichhorst, the crural nerves were examined, and they were found on each side to show advanced neuritic changes, with thickenings of the arterial coats. Although, then, the case was strictly one of "cervical tabes," and one which presented the characteristic tabetic symptom of absence of knee-jerks, this symptom was not to be attributed to the spinal lesion, but to peripheral changes in nerves. The association between peripheral neuritis and tabes has long ago been pointed out, and there seems little question that it is fairly constant; but Prof. Eichhorst thinks it is neither so frequent, nor is the former condition so early in its development, as to account for the common and very early occurrence (in tabes) of Westphal's symptoms. For as a rule, he says, the changes in the cord precede those in the nerves—an opinion, however, which is not universally shared.

THE VACCINATION LAW.

IT is not often that the Local Government Board institutes proceedings against boards of guardians for refusal to carry out the vaccination law, but this course has recently been adopted to compel the Kettering Board to appoint a vaccination officer. The law has been in abeyance for some time, and the Local Government Board has now applied for and obtained a *mandamus* against the guardians, and copies of the rule were served upon them. The result has been that the guardians have given way and the vaccination officer will be appointed.

LADIES' DRESSES, DUST, AND DISEASE.

RECENT instructions issued by the chief of the Viennese police have reference to the inconvenient length of ladies' trains as worn in the streets of the Austrian capital. On general grounds, the public, we may rest assured, will not object to restrictions on these cumbrous and obstructive appendages. Taste, if it has (as we have always understood) a close connexion with neatness, will also be gratified by this protest on behalf of simple dress. Health, which is equally concerned with personal cleanliness, will be sensible of a sanitary gain. But the police have even more in view. The flowing skirts, they contend, have a possible influence on the spread of contagion by the dust they raise. It is impossible with mathematical accuracy to disprove this possibility, but surely here is a case in which over-anxiety bred in a germ-haunted mind has usurped the leadership of practical sense. If otherwise, why does not traffic cease in the streets of Vienna, and what calamities may not be looked for when the heedless winds of September will scatter clouds of dust into every corner of the city.

FOREIGN UNIVERSITY INTELLIGENCE.

Berlin.—Dr. G. de Ruyter has been recognised as *privat-docent* in Surgery, Dr. Günther as *privat-docent* in Bac-

teriology, and Dr. Koeppen as *privat-docent* in Mental and Nervous Diseases.

Breslau.—Dr. M. Bitter has been recognised as *privat-docent* in Hygiene.

Buda-Pesth.—Professor Klug of Clausenburg has been appointed to the chair of Physiology.

Dorpat.—Dr. Cschiesch, of St. Petersburg, has been appointed to the chair of Mental Diseases.

Fribourg.—Dr. Oppel has been recognised as *privat docent* in Anatomy.

Leipsic.—Dr. Windscheid has been recognised as *privat-docent* in Medicine.

Limoges.—Dr. Dérignac has been promoted to the Professorship of Hygiene and Therapeutics.

Lisbon.—A female candidate has just obtained the diploma, two ladies are in their last year of studentship, and two more in their first.

Marburg.—Professor Löffler of Greifswald has been offered the chair of Hygiene.

Nancy.—Dr. Heydenreich, Professor of Clinical Surgery, has been appointed Dean

Padua.—Dr. Righi has been recognised as *privat-docent* in Hygiene.

Pavia.—Dr. C. Platschik has been recognised as *privat-docent* in Odontology.

Tomsk.—Dr. Burzbinski of St. Petersburg has been appointed to the chair of Pharmacology.

Vermont.—Dr. C. W. Cutler of New York has been appointed to the Professorship of Dermatology and Syphilis in succession to Dr. Taylor, who has resigned.

Vienna.—Professor Schauta of Prague has been appointed to the chair of Midwifery, vacated by the death of Professor Braun.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.

THE deaths of the following distinguished members of the medical profession abroad have been announced:—Dr. Alois Martin, formerly Professor of Forensic Medicine in Munich.—Dr. C. von Helly, Professor of Midwifery in Gratz.—Dr. May, formerly Professor of Surgery in Maryland College, Baltimore.—Senhor V. de Barros, formerly Inspector of Hospitals in Lisbon.—Dr. Carl Ritter von Hellig, Professor of Gynæcology and Midwifery in the University of Graz, in his sixty-sixth year.—Dr. Potter, Professor of Laryngology in the University of Buffalo.

THE news of the death of Professor Richard Leon MacDonnell of McGill University, Montreal, which took place on July 30th last, will be received with regret by a large circle of the profession both at home and abroad. Dr. MacDonnell was professor of clinical medicine in the University and physician to the General Hospital. He had done a considerable amount of good work in medicine, which was published chiefly on this side of the Atlantic. Last winter he contributed to our columns a paper on "Tracheal Tugging in Thoracic Aneurysm," which attracted wide attention.

THE British Association commenced its meetings on Wednesday with the inaugural address of the President, Dr. William Huggins. The address dealt wholly with the subject of Spectroscopic Astronomy, with especial reference to the work of the last year or two.

LOCK HOSPITAL, LIVERPOOL.—This hospital will be reopened on the 31st instant, for the admission of patients. Payment will be required from all patients on a specified scale. Special wards on higher charges will be available for both sexes. The desire is to make the institution self-supporting as nearly as can be.

A BRIEF ANALYSIS OF THE APPEARANCES OBSERVED IN THE BODIES OF SEVENTEEN PERSONS "BURNT TO DEATH."

IN looking through my papers I came on notes of the appearances found after death in each of the fourteen persons who lost their lives in a house in the vicinity of Holborn destroyed by fire. As there were several points of interest in these cases, which at the time the notes were taken were not well known to the profession, in order to satisfy myself as to their accuracy and frequency I obtained permission, by the kindness of Mr. Wakley (then coroner), to examine the bodies of three people destroyed in a public-house burned down in Great Portland-street. I therefore have notes of the appearances found after death in the bodies of seventeen persons discovered dead in houses destroyed by fire. As some persons suspected that the fourteen persons in the house near to Holborn had died from the inhalation of arsenuretted hydrogen (there was close by and affected by the fire a collection of minerals), I killed some rabbits with arsenuretted hydrogen, some with carbonic acid, and some with carbonic oxide, all kindly prepared for the purpose under the direction of the gentleman who was then professor of chemistry at University College. In those killed by inhaling arsenuretted hydrogen, the blood itself, the liver and other viscera, the colour of which is chiefly due to the blood in their vessels, were dark greyish-black. The greater part of the blood was of the consistence of treacle, but in it were some hard blackish clots. It was clear from the colour of the blood and of the viscera that arsenuretted hydrogen had nothing to do with the death of any of the seventeen persons referred to. In the rabbits killed by inhaling CO_2 the blood and the viscera were purple; in those killed by the inhalation of CO they were brilliant red.

The several points of interest and importance to which I have referred may be arranged under the following heads:

1. The rigidly flexed position of the limbs. The force required to straighten the flexed limbs, and the force with which after being straightened the limbs regained their rigidly flexed position, proved that the rigidity and flexure were due to shortening of the muscles. The shortening was the result of the muscles being cooked after death. We see the shortening and rigidity of muscles in joints cooked for the table. But, although the permanent flexion and rigidity were due to cooking, it may be that convulsive movements due to asphyxia had in some cases assisted in first flexing the limbs; had, however, the limbs not been cooked the rigor mortis would have ceased in the usual time, and the limbs then have been easily straightened.
2. The bright red colour of the blood and of all the viscera and mucous membranes present in the majority of the cases was without doubt due to death having resulted from the inhalation of carbonic oxide.
3. The fluid state of the blood. In two only of the seventeen cases were a few small clots present. The persons in whose bodies clots were found, it will be seen, lost their lives, partly at least, from mechanical injuries, the falling in of the walls, &c. The fluid state of the blood was apparently the consequence of the high temperature of the locality in which the persons were when they died from the inhalation of carbonic oxide &c., [and the very high temperature to which the bodies were subjected directly after death. When animals are killed by inhaling carbonic oxide at an ordinary temperature, the blood is coagulated very firmly.
4. The presence of fluid blood in the cavity of the arachnoid.[1] The fluidity of the blood and the high

[1] After birth, blood (so far as my own experience teaches) is rarely transuded into the cavity of the arachnoid. The causes of its transudation that I have noted are the changes in the blood due to malignant acute specific disease—e.g., malignant scarlet fever and malignant typhus, in which diseases, as in the cases of "burnt to death," the blood is often fluid. In some cases of poisoning, blood has been found in the cavity of the arachnoid, as I found this in a case of oxalic-acid poisoning. Intracranial aneurysms, bursting, extravasate blood into the cavity—i.e., in these cases blood is extravasated, not merely transuded.

temperature of the spot in which the body lay were apparently the cause of the transudation of blood into the cavity of the arachnoid in the cases recorded in this paper.

5. The protrusion of the tongue between the teeth, the firm clenching of the jaws on the tongue (so firm in two cases that blood escaped from the tongue), and the escape of frothy mucus from the mouth and nostrils. These symptoms seem to have been due to a convulsive expiratory effort, the consequence of asphyxia. The carbonic oxide made the blood bright red, but it took the place of the oxygen of the air, and the red corpuscles no longer carried oxygen in a form able to be applied to oxygenate the tissues.[2] The clenching of the jaw was permanent in the majority of the cases from the masseters being cooked after death. In one or two cases, when the body was first seen, the jaws were clenched from cadaveric rigidity, but in these cases it quickly passed away.
6. The presence of carbonaceous matter in the mucus contained in the larynx, the trachea, and in the majority of cases in the bronchi. The presence of carbonaceous matter in the air passages was manifestly due to the inhalation during life of smoke.
7. The thymus in many cases was noted to be unusually large, having regard to the age of the subject. The cause of this I did not see grounds for stating.
8. The urinary bladder was always contracted.

It has often been a judicial question whether a person was burned to death, or was murdered and the body afterwards burned by the murderer to shield himself from the legal consequences of his crime. In answering the question thus raised the presence of clots in the blood or the fluidity of the blood would have to be noted; if the blood and viscera were of a brilliant red colour, then it would be clear that the subject had died from inhaling carbonic oxide. The presence of carbonaceous matter in the mucus in the air tubes would prove that the person must have inhaled the smoke, and therefore could not have been dead when placed on the fire. The protrusion of the tongue has been supposed to prove (see case of Countess Goerlitz) that the person was strangled before being burned. The cases recorded in this paper show that for such purpose the sign is worthless.

CASE 1.—W. S——, aged ten. This boy had on a cotton nightshirt and trousers. The hair of the scalp was covered with dirt and dust, but was only slightly singed. The shirt was partially destroyed by fire over the right arm, the right side of the body, and the back. There were several small abrasions on various parts of the back and lower extremities. Beneath the trousers there was some vesication, and around the vesicles the cutis was rosy red.

1. The arms were strongly flexed and rigid; they formed a right angle at the elbow. The fingers of the left hand were flexed on the palm of the hand, embracing the thumb. The fingers of the right hand were moderately flexed; the thumb was extended. Considerable force was necessary to overcome the rigidity of the elbow and of the fingers, and when the extending force was relaxed the forearm and fingers regained the flexed position.
2. The blood was remarkably bright red, and that before it was exposed to the air. The liver, spleen, pancreas, and kidneys were bright red. The mucous membranes of the pharynx, tonsils, uvula, and soft palate of the larynx, trachea, and bronchi were bright red.
3. The blood was fluid; there was no trace of a clot in any part of the body. The heart was of normal consistence; both sides contained a moderate amount of fluid blood.
4. A considerable quantity of bright red fluid blood was found in the cavity of the arachnoid. There was no extravasated blood in the pia mater.
5. The jaws were firmly clenched, but the tongue protruded between the teeth. Frothy mucus had escaped from the mouth and nostrils, and a little blood from the tongue. There was a normal quantity of reddish fluid in the pericardium; very little in either pleura.
6. The bronchi contained a considerable quantity of mucus, dark-brownish in colour, evidently due to the inhalation of smoke.
7. The thymus gland was very large for the child's age. The dirt and dust on the boy's scalp, and the abrasions of the skin on the back and lower extremities, rendered it highly probable that he had been injured by the dusty rubbish of the falling walls before he was burnt, while the vesications with rosy red margins beneath the trousers clearly proved that these parts had been burned before life was extinct. The colour of the blood, liver, &c., and the carbonaceous matter in the mucus in the air passage were incontestable evidence that CO and smoke were inhaled before death. The protrusion of the tongue, the clenching of the jaws, and the frothy mucus issuing from the mouth and nostrils were evidently the consequences of rapidly advancing asphyxia.

CASE 2.—Alfred S——, aged fifteen. This lad had on a shirt much burnt about the right side and posteriorly. The hair on the scalp was burnt off the left side; the whole body was burnt and charred posteriorly; the thorax and abdomen were anteriorly uninjured. The left arm was very extensively charred, but the hand and wrist were almost uninjured, except at places where there was vesication, as if from scalding water. The lower extremities, both anteriorly and posteriorly, were very much burnt.

1. The right forearm was flexed on the arm. The hand was partly contracted. The left forearm was flexed at right angles with the upper arm; the hand relaxed. The lower extremities were flexed at the knees, and both feet powerfully extended.
2. The substance of the heart was bright red. Kidneys bright red; spleen very pale.
   The stomach and diaphragm were both ruptured.
3. The blood was fluid throughout the body; no clots in any vessel.
4. There was no blood in the arachnoid.
5. The tongue protruded from the mouth, and was compressed between the teeth. The jaws were firmly clenched.
6. The pharynx, larynx, trachea, and bronchi were all full of black mucus.
8. The urinary bladder was contracted.

Death in this case was caused by the inhalation of CO, by the obstruction of the air tubes by mucus loaded with carbonaceous matter, and by the shock to the nervous system by the mechanical injury which produced the rupture of the stomach and diaphragm. The vesications on the left hand and wrist show that their cause—i.e., the local application of heated solids, air, or water, was applied before the complete extinction of life.

CASE 3.—Richard S——, aged fifty-two. The nightdress was almost destroyed.

1. The burns on the body were chiefly on the right side, and on that side the upper and lower extremities were quite rigid, while the left were flaccid. There were a very few burns on the surface, with red halo around them.
2. The lungs were congested, and, like the other viscera, darker than the same organs in the majority of the bodies examined.
3. The blood in the right and left sides of the heart and in the vessels was generally fluid.
4. The cavity of the arachnoid contained a quantity of fluid blood; the red points on the cut surface of the brain were abnormally numerous.
5. The tongue was protruding from the mouth, and was compressed between the teeth.
6. In the trachea and bronchi was much mucus coloured by carbonaceous matter. The laryngeal mucous membrane was studded by some spots of extravasated blood.

Judging from the state of the laryngeal mucous membrane and the colour of the blood and viscera, this man died from asphyxia, the consequence of the inhalation of CO_2. It is evident from the halo around some of the burns that they were inflicted before life was extinct. The rigidity of the right limbs was manifestly due to their having been cooked after death, the flaccidity of the left limbs to their not having been exposed to any great heat.

CASE 4.—Jesse S——, aged two.

1. The whole of the body was very much charred.

2 and 3. The substance of the heart was healthy, but of a peculiar pinkish hue. The blood in the right side of the heart and throughout the body was fluid and very

[2] Thus carbon monoxide, by combining with the hæmoglobin of the red corpuscles, and so preventing the corpuscles from acting as oxygen carriers, produces asphyxia through deficiency of oxygen. Foster, Bk. II, p. 609.

red. The viscera and mucous membranes generally were bright pink.

4. There was a large quantity of bright red blood in the cavity of the arachnoid. The vessels on the surface of the brain were injected with bright red blood.
5. The tongue was protruding from the mouth and was compressed between the teeth. The jaws were so firmly clenched that some blood was escaping from the tongue. Frothy mucus was escaping from the mouth and nostrils.
6. The pharynx, larynx, and bronchi contained mucus with carbonaceous matter diffused through it.
8. The urinary bladder was contracted.

Asphyxia from the inhalation of CO was the cause of this child's death.

CASE 5.—Wm. H——, aged twenty. This man had on a nightshirt which was not in the least burned. It had been torn off the chest; the right arm of the shirt was stained with blood. The trousers were pulled on as high as the knees; they were torn over the left knee. They were neither burnt nor scorched, but were very wet. The hair of the head was matted with blood, but not singed. There were three large lacerated wounds on the forehead and face. The right hand and the right and left arms were burned superficially at places. The lower jaw was fixed by the rigidity of its muscles (from cooking) about half an inch from the upper jaw; the tongue, however, did not protrude. At the back of the tongue, close in front of the epiglottis, were some small stony substances resembling mortar. In the pharynx, by the side of the glottis, was one pebble. The trachea and bronchi contained much bloody mucus.

2. The right side of the heart was gorged with dark fluid blood. The left ventricle was contracted; there were no clots on either side of the heart. The liver, spleen, and kidneys were all much congested with dark venous blood.
8. The bladder was contracted. This man was manifestly killed by the mechanical injuries inflicted on him by a falling wall. The hard mortar and pebble in the pharynx had caused blood to escape and enter the trachea and bronchi.

It was evident, from the colour of the blood and the distension of the right side of the heart, that some defective aeration of the blood had resulted from the obstruction to the entrance of air into the lungs, by the bloody mucus in the air passages. The rigidity of the jaws was due to the temperature to which the part was exposed after death. The fluid condition of the blood resulted from the heat of the air in which the body was at the time of death, and directly after death.

CASE 6.—Mrs. H——, aged fifty. This body was much charred, burnt, and blackened all over.

1. Both arms were flexed and rigid; both hands were clenched. The left leg was flexed; the foot extended to the utmost. The right foot was drawn backwards, so that the toes touched the heel. The right leg below the knee was so much charred about its middle that it fell off in the removal of the body.
2. The liver, spleen, and kidneys were very pale.
3. Both sides of the heart were empty; they looked as if they had been cooked. The lungs were shrivelled up, as if from the action of fire. In either pleura were two ounces of red-coloured fluid.
4. There was no fluid in the cavity of the arachnoid.
5. The lips were slightly apart, and the tongue was protruding. The notes of the case of this woman are too scanty to prove more than that her body was burned after her death; the protruding tongue renders it probable that asphyxia was the cause of death. I have no note of the contents of larynx &c.

CASE 7.—Robert M. P——, aged twenty-eight. The face was so much charred as not to be recognisable.

1. Both arms and both hands were flexed and rigid; both arms were deeply destroyed by fire.
2. The liver and other viscera and all the mucous membranes were bright red.
3. The left side of the skull was charred, and between the charred bones and the dura mater was a clot of cooked blood the consistence of putty, and half an inch thick. The heart was hypertrophied; the right side was greatly dilated, and contained a few minute firm clots and a large quantity of fluid blood; with the exception of these minute clots, and the mass of cooked blood between the dura mater and the charred calvaria, the blood throughout the body was fluid.
4. There was no fluid in the cavity of the arachnoid; the brain was pink and hard, evidently from being cooked.
5. The tongue protruded from the mouth, and was clenched between the teeth.
6. In the larynx and trachea there was mucus, very dark from admixture of carbonaceous matter—i.e., smoke

The colour of the viscera leads to the conclusion that the man died from asphyxia, resulting from the inhalation of CO. This man was the subject of severe, long-standing disease of the heart. His death was probably hastened by the blow he had experienced on the head; that this blow was inflicted before death is shown by the clot of blood between the charred skull and the dura mater.

CASE 8.—William S——, aged twelve. This boy had on a shirt and a calico blouse; both were burned posteriorly, but not at all in front. This difference was due to the heated state of the material on which the body lay.

1. There was no rigidity of the upper limbs. The legs were much burned, the left rather more than the right; both legs were flexed and rigid. The left foot was extended and rigid, evidently burned after death.
2. The lungs and the spleen were bright red in colour, the liver and kidneys were pale.
3. There were no clots in the heart or bloodvessels; the superior longitudinal sinus and the torcular herophili contained some red fluid blood. The right side of the heart was relaxed, the left contracted; both sides contained fluid blood, but no clots.
4. The arachnoid cavity contained a small quantity of red fluid blood.
6. The larynx, trachea, and bronchi contained mucus of a blackish colour, evidently due to inhaled smoke.
7. The thymus gland was rather large.

CASE 9.—Mrs. S——. The body and the extremities were extensively charred, the left side less so than the right. The face, especially on the right side, was so much destroyed that the features were recognised with difficulty. It was evident that some parts of the skin were burned before life was extinct, or just after, for around the burns on the posterior aspect of the left thigh there was a halo of redness, and the cuticle was raised from the cutis by serosity. The line of demarcation between the burnt and normal parts was at places well defined.

1. The right arm and the fingers of both hands were firmly flexed. When the rigidity was overcome, no sooner was the extending force removed than the flexion returned.
2. The mucous membrane of the pharynx was bright red, and sprinkled with crimson spots; the epiglottis was bright red, and its under surface was singularly spotted with red spots, varying in size from a point to a line. There was a little thickening of the aryteno-epiglottidean folds, evidently from effusion of serosity. The liver, spleen, and kidneys were pale.
3. The blood throughout the blood vessels was fluid.
4. There was a large amount of bright red fluid blood in the cavity of the arachnoid. The vessels of the pia mater were perhaps a trifle fuller than natural.
5. The tongue was protruded beyond the lower teeth. The woman's upper teeth projected considerably beyond the lower.
6. The mucous membrane of the larynx and trachea resembled the under surface of the epiglottis, and was covered with mucus, thickly streaked with carbonaceous matter.
7. The remains of the thymus gland were unusually large.
8. The bladder was contracted. The state of the mucous membrane of the pharynx, epiglottis, larynx, and trachea was probably due to the heated air breathed when the smoke entered the air passages.

CASE 10.—Mary S——, aged five. The child had on a chemise and nightdress. Both were very much burned, especially posteriorly. The trunk and the upper part of both thighs were uniformly charred. The hair was burned off both temples.

1. The right arm was semiflexed, the knees slightly raised.
2 and 3. There was bright red fluid blood, and no trace of any clot throughout the vascular system. There was a large quantity of bright red fluid blood in the right auricle. The vessels of the cerebrum and cerebellum were injected throughout with bright red blood. The liver was rather pale, the spleen very pale, and the kidneys natural.
4. There was a quantity of bright red fluid blood in the cavity of the arachnoid.

5. The tongue was protruding and compressed between the teeth. Blood was escaping from the tongue, and frothy mucus from the mouth and nostrils.
6. The trachea contained some mucus of a blackish colour, evidently from the admixture of inhaled smoke.

CASE 11.—Harvey S——, aged fourteen. His day shirt and all the clothes on the body were very little burnt, rather more behind than in front.

1. The lower extremities, and especially the feet, were rather rigid.
2. On section, the lungs were bright red. The liver and spleen were pale. The mucous membrane of the larynx and the trachea was bright red.
3. The blood throughout was fluid. There were three drachms in the right side of the heart, and two drachms in the left.
4. On the convex surface of the brain in the arachnoid cavity was a large quantity of bright red fluid blood.
5. The lower jaw was relaxed, and the tongue was within the mouth.
6. The bronchi were filled with mucus loaded with black carbonaceous matter.
7. The thymus gland was large. The pleura contained a small quantity of reddish fluid; the pericardium two or three drachms.
8. The bladder was contracted.

Here, as in several other cases, the posterior part of the shirt was more burned than the front part. This of course arose from heat of the part on which the dying or dead body lay.

CASE 12.—William H——, aged fifty-three. On the body were a shirt and flannel waistcoat. The tails of the shirt were but little burned, the flannel waistcoat not at all.

1. The right and left arms and forearms were a good deal charred. Lower limbs not burned. The right arm and hand were strongly flexed and rigid; the left were semiflexed.
2. The substance of the heart was of a bright red colour. The colour of the other viscera was not recorded in the notes.
3. The blood in the heart and vessels examined was fluid.
4. The presence or absence of blood in the arachnoid was not recorded.
5. The body was on its back, and the mouth was open. A day or two before the body was examined the mouth was closed and the tongue was protruding. The jaws, therefore, were closed from cadaveric rigidity, and were not, as in the majority of the cases, clenched from the effects of cooking.

CASE 13.—John H——, aged fourteen. The clothing was a shirt and socks. These were very slightly burned in front, but more posteriorly. The body was covered with dust and dirt. The cutis and subcutaneous tissues were deeply burned. The burned parts had no well-defined margin or red halo around them. On the inner aspect of the right leg on three spots the cutis had been destroyed without any signs of having been burned. The cutis had also been knocked off the face and shoulders. A patch of extravasated blood was found on removing the scalp, about the size of a five-shilling-piece.

2. The lungs were of a bright red colour; in the right breast was an opening leading to a cavity in the pleura; the spleen and liver were pale.
4. There was no blood in the cavity of the arachnoid.
5. The jaws were clenched, but the tongue was within the mouth.
6. The trachea contained a quantity of blackish mucus; the discolouration was due to carbonaceous matter.
7. The thymus gland was unusually large.
8. The bladder was contracted.

This lad was probably killed by the falling walls of the house. The dust and dirt covering the body, the injuries to the skin, and the patch of extravasated blood under the scalp, all point to this.

CASE 14.—Joseph P——, aged forty-eight. The right side of the trunk posteriorly and the right foot, calf, and part of the thigh were deeply charred.

1. The arms and fingers were flexed, and the legs semiflexed. Considerable force was necessary to straighten them. They could not be straightened without the skin being cracked. The cuticle could be separated to a considerable extent from the extremities, the nails being detached with the cuticle.
2. The muscles, the liver, and all the internal organs were bright red.
3. The blood was fluid in all parts of the body, and very bright red in colour. There was more than an ounce and a half in the right auricle and ventricle, and about half an ounce in the left side of the heart.
4. A considerable quantity of fluid was present in the cavity of the arachnoid, but no blood.
5. The tongue was protruded and clenched between the teeth.
6. The mucous membrane of the pharynx, larynx, and trachea was bright red. Some carbonaceous matter was present in the mucus in the larynx and trachea. The bronchial tubes contained a quantity of mucus; but there was no appearance of carbonaceous matter in the mucus lower down than the trachea.
8. The urinary bladder was contracted.

The appearances above might prove that the cause of death was carbonate oxide asphyxia, and that the body was burned directly after the cessation of life.

CASE 15.—Maria S——, aged fifteen. The child had on a frock and a small chemise. The frock was burnt around its lower margin; the chemise was uninjured beneath the clothing. The child was burnt posteriorly. A large triangular wound on the forehead extended down to the pericranium; the scalp was somewhat detached above the face.

1. Both the legs and the left arm were quite rigid.
2. The liver was bright red from its blood; the spleen palish pink. The lungs resembled the other organs in their bright red colour, due to the blood in them.
3. Both sides of the heart contained some bright red fluid blood.
4. Some bright red fluid blood was contained in the cavity of the arachnoid.
5. The tongue protruded a considerable distance beyond the teeth; the teeth compressed the tongue.
6. The trachea and bronchi contained a small quantity of dark mucus (smoke dyed).
7. The thymus gland was large.
8. The urinary bladder was contracted, but contained one drachm of urine.

CASE 16.—Harriet S——, aged fifteen. The nightdress was burnt in a few spots in front, rather more at the back

1. The right hand was across the body, the left flexed and raised towards the face; both slightly contracted. There was a superficial wound just above the left ear, from which a quantity of blood, sufficient to mat the hair on the left side of the head, had escaped. The face and forehead, like other parts of the body, were denuded of cuticle, and had a half-cooked appearance, evidently from exposure to heat after death, there being no vesication and no sign of reaction at the edges of the burns.
2. The liver was of a bright red colour, as were all the mucous membranes; the spleen was pale.[3]
3. The blood was fluid; the right ventricle contained more than the left.
4. There was a quantity of bright red fluid blood in the cavity of the arachnoid, and a little reddish fluid in either pleura.
5. The tongue was protruded, and compressed between the teeth; frothy mucus was issuing from the mouth and nostrils.
6. The trachea and bronchi contained a large amount of mucus of a dark brownish or black colour, as if from inhaling smoke.
7. The thymus gland was large for the age of the subject.

This girl evidently died directly from asphyxia, the consequence of inhaling CO

CASE 17.—Sarah J——, aged twenty-five. The trunk was extensively charred; no red halo at the edges of any of the burnt parts. The skull was fractured in three or four places. The bones of the skull were charred at places.

1. On both sides the hands were bent on the forearm, the forearm on the upper arm; the fingers of both hands were clenched on the palms. The flexion and rigidity were extreme.
2. The lungs had a somewhat rosy tint; the kidneys were very florid; the liver and spleen not brighter than natural.
3. There were coagula on both sides of the heart.

[3] "Among the appearances observed in animals destroyed by CO, Ssabinski has pointed out a bloodless condition of the spleen. This organ had a rose-red colour, but when a section of it was made scarcely any blood flowed from it." Taylor: Principles and Practice of Medical Jurisprudence, second edition, vol. ii., p. 110.

4 There was a quantity of fluid, but no blood, in the cavity of the arachnoid.
5. The teeth were charred, but the tongue protruded a little between them.
6. The bronchi contained a large quantity of black mucus—blackened by the smoke inhaled.
8. The bladder was contracted. The death of this woman was the result of mechanical injuries (fractured skull, &c) inflicted by the falling walls.

The absence of any redness at the margins of the parts that showed signs of having been burned leads to the conclusion that the burns on the body were inflicted after death. The death having resulted from mechanical injury, the body probably was exposed at once to a temperature high enough to prevent the blood coagulating.

WILLIAM JENNER, M.D. Lond., F.R.C.P., &c.

Bishop's Waltham.

P.S.—Dr. Ringer and some others, whose names have escaped my memory, assisted in taking the foregoing notes.

THE

INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

SECTIONAL MEETINGS.

WE conclude this week our report of the proceedings of the various Sections of the Congress.

SECTION I.

PREVENTIVE MEDICINE.

THURSDAY.

Prevention of Consumption.—Dr. ARTHUR RANSOME (Manchester) read a paper on the need of special measures for the prevention of consumption. In his opinion consumption was both curable and preventable. The first proposition was proved by (1) the evidence of healed phthisis in a large proportion of bodies examined after death in public institutions; (2) by the testimony of many eminent physicians; (3) by returns from consumption hospitals. Its preventability was shown by the results of the drainage and ventilation of barracks, public institutions, and towns. Cases of cured phthisis were peculiarly liable to a recurrence of the disease, and the number of susceptible persons in the general population might be counted by hundreds of thousands.

Dr. J. EDWARD SQUIRE (London) followed with a paper on the same subject, in which he discussed the question, "To what extent could legislation assist in diminishing the prevalence of consumption and other tubercular diseases?" Any protective measures against tuberculosis, he said, must proceed on the hypothesis that infection might come from human beings and from animals.

In another paper, Dr. GIBERT (Havre) stated that phthisis in Havre was every year making positively frightful ravages. The annual death-rate amounted to not less than 5 per 1000. This number varied in a highly instructive ratio in the different quarters, although incident on the same social class. The influence of the density on population was manifest; hereditary influence was practically *nil;* that of alcoholism was considerable.

Professor FINKELNBERG (Bonn) gave an address on the Influence of Soil on the Spread of Epidemic Disease.

Alcoholism and Public Health.—In the course of the discussion which followed the papers on this subject by Sir Dyce Duckworth and Professor Westergaard (Copenhagen), which has already appeared in THE LANCET, Dr. NORMAN KERR (London) said the loss of life through alcoholism was appalling. He had estimated the number of deaths prematurely occurring in the United Kingdom every year at 40 000 for personal intemperance. To this direct annual premature fatality of 40,000 inebriates there must be added double that number of deaths of individuals occurring, not directly from their own habits, but indirectly, through accident, violence, starvation, neglect, and disease occasioned by the alcoholic indulgence of persons other than those slain by alcoholic poisoning. A terrible slaughter truly, and achieved at great pecuniary cost. All this mischief was avoidable. The remedial process would require time extending over several generations, but the evil could be remedied (1) by recognising inebriety, or, as he ventured to call it, "narcomania" (a mania for intoxication or torpor), as a disease, and drunkenness as very often but an effect or symptom of disease. Were this disease recognised and treated at an early stage of the malady, Dr. Kerr had no doubt that the majority would be cured. (2) By amended legislation to provide for (*a*) compulsory reception and retention of inebriates too demoralised to apply of their own accord, (*b*) for reception of voluntary applicants on a simple agreement without appearance before justices, and (*c*) for the care and treatment of the poor and those of limited means.—The PRESIDENT said he was opposed to prohibition, but advocated temperance in its truest sense. He thought it was absurd to say that because a person might poison himself by alcohol its sale should be prohibited. They might as well say that because a person was sometimes poisoned by opium they should entirely prohibit the sale of opium.

Mr. J. G. PHILLIPS (London) read a paper giving a brief statement of the experience of the Sceptre Life Association, in which a separate section was formed for total abstainers. It was found that a much lower death-rate prevailed in that section than in the section for non-abstainers.—Dr. HEWITT (Minnesota) said the opinion of the majority of the health officers of the United States and the majority of the wise men in his own State was that the Maine Law was a failure. Anyway, his own State had decided to adopt the high licence system and local option, which were working fairly well, as a mechanical substitute for common sense; but alcoholism was not prevalent with them as it was here.—Professor EMILE ALGLAVE (Paris) said that alcoholism was due, above all, to the presence in the alcohol of impurities, described as superior alcohols by chemists, especially amylic alcohol.—Dr. KINKEAD (Galway) looked upon inebriety as a disease which specially weakened the will power. He held that total abstinence was essential where alcoholism was developed. It was, above all, essential in the case of children. If they were able to prevent children getting alcohol, he believed they would see very little alcoholism in after life. He thought the supplying of alcohol to young children ought to be made a penal offence. They ought to establish asylums, and to have power to place inebriates in them.—Dr. ISAMBARD OWEN stated that, as far as his own experience as a physician had gone, he felt bound to say that, putting aside the subjects of organic disease in which alcohol was used as a medicine, he had never found any individual man or woman appreciably the worse for being a total abstainer.—Sir V. K. BARRINGTON said habitual drunkards were repeatedly received into their asylums; they were cured, went away, and got drunk the same day at the nearest public-house. He was strongly in favour of a system of seclusion, but this would be a most difficult thing to enforce in London, because of its initial cost. The prospect was a gloomy one to those who desired to see some cure for intemperance. — Dr. ROBINSON (Maine, U.S.A.), referring to the statement that the Maine Law was a failure, said these statements were made only by those who did not live in that State. He, however, assured the Section that public sentiment generally was in favour of the law, and it was enforced.—Dr. ARTHUR (London) declared that alcohol was not food, but an irritant poison, and he thought that was becoming every day to be more and more recognised. There ought to be proper physiological teaching of children that alcohol was not necessary, but hurtful, even in small doses. He thought they should give prohibition a fair trial in England. If it was not a success, it might be abandoned, and some other method tried.—Dr. P. SONSINO (Pisa) and Professor MILLIET (Berne) also took part in the discussion.

Improved Hygenic Condition of Maternity Hospitals.—Dr. W. O. PRIESTLEY (London) read a paper on this subject, in which he observed that during the end of the last century and the first half of the present one the mortality in maternity hospitals was very large, both on the Continent and in Great Britain. According to Le Fort, it was at the rate of 34 per 1000; while, according to Miss Nightingale, it was only 4·7 per 1000 when patients were confined at their own homes; or, according to Dr. Matthews Duncan, 8 per 1000, equal to 1 in 125. The cause of the increased mortality in lying-in hospitals was the prevalence in these institutions of puerperal fever, 75 per cent. being due to this cause. The infectiousness of puerperal fever, long doubted, was at length established, and also the fact that various poisons, brought from the dissecting room, from patients suffering from erysipelas, eruptive fevers, and the

like, became the germs of infection which might cost the lives of many patients. It came to be recognised that, by preventing the ingress of these germs to the bodies of puerperal patients, comparative safety, even in lying-in hospitals, was attainable; and the introduction of the antiseptic and aseptic methods had produced, not only a remarkable diminution of mortality, but also of the *morbidity* or illness incident to the puerperal state. The mortality from all causes in various countries in Europe, according to Le Fort, was 30,394 out of 888,312 deliveries, or 34·21 per 1000. Dating from 1881, after the introduction of antiseptics, the deaths were only 511 out of 102,961 deliveries; and it was calculated that, taking Le Fort's figures as a basis, no less than 3011 lives of mothers had been saved—a fact furnishing an instructive study to opponents of scientific research, who had not hesitated to charge those engaged in experimental investigations with a desire only to gratify personal ambition.

Prevention of the Spread of Epidemic Influenza.—In the course of a paper on this subject, Dr. R. SISLEY (London) said that influenza occurred sporadically and endemically in China. The chief means which should be adopted to prevent the spread of influenza were hygienic, and the use of prophylactics. Quinine was not a certain prophylactic, but there was some evidence in favour of the application of a solution of boric acid to the conjunctivæ of those exposed to infection.—In the course of a brief discussion, Mr. R. WEAVER, C.E., directed attention to the value of periodates, and especially of periodate of iron, as curative and preventive agents in the case of influenza.

Prevention of Blindness.—Dr. J. C. DVOREMAAL of the Hague read a paper entitled "La Prévention de la Cécité Professionelle," in which he stated that in most cases blindness of this class was caused in the country by an insignificant lesion (e.g., the keratitis of harvest labourers), followed by infection (blenorrhœa of the lacrymal sac). In towns, on the other hand, such blindness was due to grave primary lesion without, or nearly without, infection. It was therefore incumbent, in the country, to prevent infection, and in towns to avoid local injury. The public should be instructed not to neglect a discharge from the lacrymal sac, and doctors practising in the country should be reminded to treat every dacrocystitis thoroughly, and to secure any corneal wound against infection by rigorous antiseptic treatment.

Influence of the Nile on Mortality in Egypt.—Greene Pasha, director of the Sanitary Department of Egypt, read a paper on this subject. He gave at the outset a brief topographical description of Egypt and the Nile, and proceeded to deal with the density of the population and mode of life of the inhabitants, the water-supply from the Nile, the sources of pollution of the Nile, and the effects thereof. Stagnant water did not destroy disease germs. He exhibited a diagram of the birth- and death-rate in the twelve chief towns of Lower Egypt between 1886 and 1890, showing that the mortality rose as the river fell, and became stagnant in all the towns except Damietta and Rosetta. The low Nile rise of mortality was marked in Guizeh, Cairo, Mansourah, Alexandria, Damanhour, Tantah, Mehalla, Zagazig, and Port Said during at least three out of the five years. There was an excess of deaths over births at the same season. In the case of Damietta the sanitary condition was certainly not superior to that of the other towns. During the five years the deaths never exceeded the births, and the low Nile mortality was conspicuous by its absence. At Rosetta there was superior house accommodation, and a general low death-rate. The low Nile rise of mortality was absent, the low Nile season being, on the whole, the healthiest part of the year. The reasons usually ascribed for summer mortality, such as excessive heat, general insalubrity, ingestion of unripe fruit, measles, &c., were all equally operative in Damietta and Rosetta. In the author's opinion the water-supply was the cause of the mortality, as Rosetta and Damietta alone of all Egyptian towns were unable in summer to use Nile water, which was brackish there. Pure water, drainage, and ventilation were required to bring down the enormous mortality. The problem for procuring pure water was not difficult. Money only was required. With regard to Mr. Cope Whitehouse's scheme, the gain resulting from it would be equal to five times the expenditure from an economical point of view.

Dr. FELKIN (Edinburgh) read a paper on Malaria and Enteric Fever in Central Africa (including the so-called Blackwater and typho-malarial fevers), and on the possible antagonism between Malaria and Phthisis.

Preventing the Spread of Infectious Disease.—Dr. LEWIS SAMBON, delegate of the municipality of Naples and a Lieutenant in the Italian Medical Staff, on a scientific mission to England, read in English a paper on Measures for Preventing Infectious Diseases. He first pointed out the similarity which was most striking between the mode of development and diffusion of infectious diseases and some insect pests, such as locusts. Both had likewise their endemic areas, both their seasons of development, both in some years spread more widely, and at long intervals formed regular plagues; both migrated in the same constant direction, and both died away out of their endemic areas, subsiding in the struggle for existence. The influence of atmosphere had been very little studied in connexion with infectious diseases, and Dr. Sambon especially insisted on the importance of bacteriological researches in the lower strata of the atmosphere and in water. The prophylactic measures against infectious diseases ought to be in accordance with the knowledge we had of their mode of diffusion, and they ought to progress with our studies of the diseases; but, most strangely, that is not so. As to quarantines and sanitary cordons, Dr. Sambon said that our modern investigations showed them to be useless, and a long experience had utterly condemned them. England had been accused of being commercially and politically interested in the abolition of quarantine. No nation could boast of having held public health so high above commercial interest, and it must be remembered that the English at one time had been most sanguine supporters of quarantine. Quarantines were first instituted by the old Republic of Venice, whose life and power lay entirely in commerce, and, although quarantines had proved so disastrous to finance, so useless to sanitation, so vexatious to liberty, yet he held them to be a glory of his country, because they showed a readiness in those times to sacrifice all to the health of populations. Speaking of preventive inoculations, he said that vaccination was a triumph of English medicine. Since that time many other preventive inoculations had been recommended in several diseases, but he thought that practically prophylaxis did not lie at all in that way. The most important and perhaps the only satisfactory measure against infectious diseases was the sanitation of towns and hygiene. In speaking of the sanitation of towns, he mentioned that vast areas of the old city of Naples had been pulled down and two new districts built. Having now a splendid supply of water (which had been introduced since 1887), when their drainage should be completed, Naples, which even before had been one of the healthiest towns of Europe, would certainly be unrivalled. But it was not enough to improve the sanitary conditions of a town; the principles of hygiene should be impressed on the minds and consciences of people. In all cases, whatever might be done, one thing was absolutely necessary, and that was that all States should agree on the same points, and that all should understand equally the high importance of the old aphorism, *Salus populi suprema lex.*—The PRESIDENT highly complimented Dr. Sambon on the manner and matter of his paper, which he considered a very valuable contribution to the proceedings of the Section.

The Section adjourned.

FRIDAY.

The first subject for consideration by this Section was the Hospital and Ambulance Organisation of the Metropolitan Asylums Board for the Removal and Isolation of Infectious Diseases, upon which a paper was furnished by Deputy Surgeon-General BOSTOCK, C.B., and Sir VINCENT K. BARRINGTON, delegates of the Metropolitan Asylums Board. The paper set forth that prior to 1867 organised provision for the removal and isolation of infectious disease in the metropolis could hardly be said to have existed, at least as a means of prevention. In that year the Poor-law Board, in virtue of the power obtained under the Metropolitan Poor Act, issued an order combining the parishes and unions of the metropolis into one district, called the Metropolitan Asylums District, for the reception and relief of poor persons suffering from fever or small-pox, or who may be insane. The action taken by the Board in providing hospital accommodation was described. Every inhabitant of London was now legally entitled, when suffering from fever, diphtheria, or small-pox, to claim admission into one

or other of the managers' hospitals, or to call upon them to carry him to any other hospital or place within the metropolitan district. The paper then proceeded to set forth the existing hospital and ambulance organisation for the prevention of the spread of disease, and to describe, somewhat in detail, the proceedings in connexion with the removal and distribution of patients. All the hospitals, ambulance stations, and wharves were in telephonic communication by private wire with the head office at Norfolk House. The paper was illustrated by diagrams and a number of statistical tables.

Dr. DUDFIELD, Dr. SEATON, Dr. ARMSTRONG, Professor STOKVIS (Amsterdam), and Dr. HAUSER (Madrid) took part in the discussion which followed.

Prevention of Disease in Growing Towns.—Surgeon-General BEATSON then read a paper on this subject. Numerous legislative enactments, he said, had been contrived for the prevention of disease, but none had been universally successful because they were mostly optional, and had to be carried out by individuals who had not studied and did not much believe in sanitary science, or who had their own theories as to the nature and origin of epidemic disease. The writer was no opponent of the germ theory. He regarded bacterial organisms rather as results than as originating causes. Disease might be regarded as a condition of the human system, not as a separate self-existing entity; it might originate *de novo* under circumstances favourable to its development; and it was often the result, not of single, but of many concomitant causes. The complete prevention of disease in growing towns might perhaps remain for ever an impossibility. Certainly it would not be promoted while people believed that epidemic disease was always an importation and never the outcome of the unwholesome conditions by which they were surrounded; while the formation and sanitation of towns remained chiefly in the hands of private landowners, town councillors unskilled in sanitary science, local officers of health engaged in the practice of curative medicine, and speculative builders. The writer submitted for consideration the desirability of establishing a State Department of Hygiene for the control and guidance of local sanitary authorities, and for the general conservation of public health.

Some remarks were made upon this paper by Professor STOKVIS and Dr. DICKSON, R.N.

Disinfection.—Professor PISTOR (Berlin) read a paper on this topic.

Prevention of Fevers in India.—Surgeon-General Sir WM. MOORE read a paper on this subject, which will be found in another part of to-day's impression.—The PRESIDENT, commenting on the paper, stated that in his opinion the best method for diminishing the mortality from fever in India was by improving the subsoil drainage.—Other speakers in the discussion were Surgeon-General Beatson, Surgeon-General Cook, Dr. Payne, Surgeon-Major Poole, Dr. Dickson, R.N., and Surgeon-General Cornish.

Prevention of Entozoal Affections in Man.—This was the subject of a paper furnished by Dr. P. SONSINO (Pisa), which was read by Dr. ISAMBARD OWEN. The author enumerated the necessary points of personal hygiene, and went on to show how effective the application of State measures would be were it possible to enforce cremation or thorough disinfection of human excreta, particularly of fæces, vomits, urine, and sputa; and specified certain regulations which should be made obligatory by boards of health, pending the possibility of the more complete measures. The first part of this paper appears in our present impression.

Dr. SEATON, in the course of a short discussion, remarked that the conditions of entozoal life provided probably one of the most fruitful directions in which they could work in regard to the prevention of diseases due to bacteria.—Mr. SANDWITH (Cairo) said they in Egypt were greatly indebted to Dr. Sonsino for his writings. Egypt was practically the home of most of the entozoa. Anchylostomum duodenale was, however, the serious disease of Egypt, producing a terrible, widespread anæmia, incapacitating a large number of the adult male population from service as soldiers, policemen, &c. Fortunately, in thymol they had a specific remedy for expelling this parasite. Doses of 1½ dr. would expel as many as 150 or more of these worms.—The PRESIDENT said that when, in 1876, he was returning from India, he had the pleasure of making Dr. Sonsino's acquaintance, and he then showed him some of his recent discoveries. Since then Dr. Sonsino had been strenuously prosecuting his discoveries. He (the President) had had experience of the disease, and could testify to the great advantage of these discoveries. He looked upon Dr. Sonsino's researches as of the greatest practical importance. He believed they put the profession in possession of facts which would enable them to deal successfully with diseases which hitherto had been quite impracticable. He was very glad of this opportunity of bearing his testimony to the value of Dr. Sonsino's experiments.—Dr. SONSINO returned thanks to Sir Joseph Fayrer and Mr. Sandwith.

Cholera in Egypt.—Mr. SANDWITH next read a paper on this subject, an abstract of which will be published in a future number of THE LANCET. He did not believe in the endemic theory of cholera in Egypt, which had been propounded in 1883 by Sir Guyer Hunter. He drew attention to the fact that most of the epidemics in Egypt had been preceded by cholera in Mecca, and he was of opinion that attention in relation to that disease should be more especially directed to the annual pilgrimages to the holy places.—Dr. SIMPSON (Calcutta) and Dr. SKEKOULIS (Constantinople) corroborated this view.

Disinfection by Antiseptic Inunction.—Mr. J. BRENDON CURGENVEN (Teddington) followed with a paper on the Disinfection of Scarlet Fever and other Infectious Diseases by Antiseptic Inunction.

On the Alleged Connexion of Vaccination with Leprosy.—PHINEAS S. ABRAHAM, M.D., read a paper on this subject. Accepting the bacillary theory of leprosy, and believing that instances have occasionally been reasonably demonstrated of its communication from one infected person to another previously healthy, Dr. Abraham has sought for evidence as to every possible means of inoculation, vaccination included. In this paper he gave a short account of the principal inquiries bearing upon the subject, and discussed the facts which have been alleged to connect leprosy with vaccination. The statements, or supposed cases, of the following observers were among others alluded to:—Sir Erasmus Wilson, Sir R. Martin, Dr. Bakewell, Dr. Tilbury Fox, Dr. Castor, Dr. Ebden, Mr. Malcolm Morris, Dr. Remiss, Dr. Hildebrandt, Dr. Arning, Dr. Mouritz, Dr. Rake, Archdeacon Wright, Professor Gairdner, Dr. Black, Drs. Swift and Montgomery, Surgeon Brunt, Dr. Piffard, Mr. Hillis, and Professor Leloir. It was pointed out that the question had been in the minds of inquirers for many years past, and that the supposed instances brought forward were comparatively few. Even the most suspicious cases, such as those adduced by Professor Gairdner, Mr. Hillis, and others, were open to the objection that there was nothing to show that the subjects had never been exposed to any other possible means of inoculation or contagion, had never been in contact with lepers, or had never had to do with food or anything else which might have become contaminated by lepers; in short, we could not be sure that, having been born, or having lived for some time in a leper land, they had not been exposed to other pathogenic conditions of the disease. Dr. Arning's and some of the other observations were quoted in full because they had been much twisted, and false deductions have been drawn from them. The evidence from Scandinavia was significant; vaccination had been compulsory in Norway for many years, and largely practised from arm to arm in the leprous districts, and, as Dr. Hansen stated, no case of transferring leprosy therefrom had been hitherto known. Leprosy, indeed, was there steadily decreasing. In China, according to Dr. Manson, leprosy was common in the district where vaccination had been practised for the last sixty or seventy years; but, on the other hand, it was more common in districts where vaccination had only been recently introduced, and was practised to a very limited extent only. Some fresh facts and definite information on the subject were hoped for from Mr. William Tebb's late evidence before the Vaccination Committee. A great deal was of course made of the observations of Professor Gairdner, Dr. Arning, Dr. Castor, Mr. Hillis, and of some of the others alluded to above. One of them held the view that the spread of leprosy might be due to *syphilitic* vaccine lymph, and another had written a pamphlet on the subject which was full of inaccuracies. In point of fact, although *a priori* the possibility of an occasional accidental inoculation of the disease by vaccination might be admitted, up to the present time no absolutely clear and incontrovertible evidence connecting vaccination with leprosy had been forthcoming, and in Dr. Abraham's opinion anyone who

said that vaccination was to any extent responsible for the spread of leprosy talked arrant nonsense. Nevertheless, from what was known concerning the introduction of bacillary diseases in man and animals, it certainly behoved medical men to be extremely careful in the selection of their lymph for vaccination; and in a country where leprosy was rife it seemed to him that it would be advisable to exercise particular caution, and if possible avoid, as was now being done in Hawaiia, an indiscriminate arm-to-arm vaccination among the natives. The question of the possibility of transmitting leprosy bacilli by vaccine is receiving attention on the part of the Indian Leprosy Commission, and a paper on the subject by Drs Beavan Rake and Buckmaster will appear in the next number of the *Leprosy Journal*.—A brief discussion followed, in which Mr. A. Milner, M.A. (London), Mr. J. J. Cassidy (Toronto), and Surgeon-Major Pringle took part.—Dr. Abraham replied.

The PRESIDENT said it would be most ungracious on his part were he to allow the meeting to separate without expressing the gratitude he personally felt to the members of the Congress who had attended the Section in such numbers, and discussed the questions brought before it with the utmost courtesy and patience. He desired also to return thanks to the distinguished foreign gentlemen, his co-presidents in the Section, who had relieved him so ably of a great part of the duty he had to perform. It was exceedingly good and kind of them to sacrifice so much of their time. It had had a most excellent effect, and had shown the truly international nature of the Congress. Above all, he desired to thank the secretaries, Dr. Seaton, Dr. Isambard Owen, and Dr. Sidney Martin, to whom, if credit were due to anyone for the success of the Section, such credit was due. He thought the result of the proceedings of the Section would be ultimately of great service.

A vote of thanks to Sir Joseph Fayrer, for the most efficient, able, courteous, and kind manner in which he had performed the duties of President, was cordially passed, and the President having briefly acknowledged, the Section rose.

SECTION II.

BACTERIOLOGY.

FRIDAY.

The Section resumed on Friday, under the presidency of Sir Joseph Lister, by a series of papers on disinfection and disinfectants. Papers on the subject were read by Dr. Behring (Berlin), Professor Crookshank (London), Professor Max Grüber (Vienna), and Professor Hueppe (Prague). Dr. BEHRING'S paper dealt with the results of his experiments of chemical preparations on living tissue as regards their disinfecting capability, of which the following points will show the drift. He has succeeded in curing animals affected with anthrax with a mixture of solution of sublimate and sodium chloride. The mixture possesses an antiseptic action ten times stronger than either solution used alone, although its action as a poison does not increase in the same degree. He had performed experiments to show the therapeutic action of the blood of immune animals on anthrax, and he had come to the conclusion that blood had a disinfectant action in other diseases.

Antiseptics in the Healing of Wounds.—Dr. ARMAND RUFFER said that without entering into the question as to whether leucocytes and wandering cells in general take an active part in the formation of cicatricial tissue, there can be no doubt that these cells have the function of removing foreign bodies (blood-clots, ligatures, micro-organisms, &c.) which have been accidentally left in a wound, or purposely introduced into it. Any agents, therefore, which, to any appreciable extent, prevent the emigration of wandering cells must retard the healing of a wound. The object of his experiments was to find out what effect, if any, antiseptics produced on the emigration of leucocytes. He found all antiseptics as used in surgery at the present moment, when applied to a wound, hindered the emigration of leucocytes to the spot where the antiseptic is placed. This inhibitory action varies with the kinds of antiseptics used, and the action is purely local. It is not a paralysing action, for when an antiseptic is placed under the skin the leucocytes emigrate, but shun the antiseptic. A substance may have very low antiseptic properties and repel leucocytes most energetically, as lactic acid, or it may possess fair antiseptic powers and not repel leucocytes, like iodoform; or, being a strong antiseptic, may either attract or repel, such as carbolic acid and sublimate. Generally speaking, the chemical substances which combine readily with the salts and albuminoid bodies of the blood—e.g., carbolic acid and sublimate—do not repel leucocytes so energetically or for so long as those which do not readily combine—e.g., aniline, benzol, &c. Nevertheless, this is not due to a possible mechanical action of such substances, as can be easily proved by actual experiment.

Sir JOSEPH LISTER, at the close of the work of the Section, complimented the members on the amount of work which had been accomplished. It was a highly important Section, and he considered it a very high honour to preside over it.

SECTION III.

THE RELATION OF DISEASES OF ANIMALS TO THOSE OF MAN.

FRIDAY.

The last meeting of this Section was held on Friday, August 14th, the President, Sir Nigel Kingscote, being in the chair.

Infectious Diseases Communicable to Man from Animals, or vice versa.—The first paper was one by Professor PERRONCITO, of Turin. He described an epizootic disease transmissible from animals to man, caused by an organism which he called "proteus virulentissimus." He referred to cases of actinomycosis of the skin, and to many other parasitic affections, including that which was the cause of the anæmic sickness among the workers in the Mont Cenis tunnel. Actinomycosis was not really a new disease, but it was not recognised until comparatively recently as a specific micro-parasitic affection. There could be no doubt from the writings of Professor Dick that actinomycosis in cattle was extremely prevalent in Scotland from 1827 to 1839. In other parts of Great Britain it had probably been equally prevalent since, though lost sight of under various names, as wens, elyers, crewels, spina ventosa, carcinoma, &c. It was not until 1887, when Professor Crookshank established the etiology of wens, and investigated several outbreaks of a disease which proved to be actinomycosis, that it came to be generally recognised that actinomycosis in cattle was in some counties one of the commonest diseases of cattle in this country, and more recently the disease had been found to be equally prevalent in our Australian colonies and in the United States. Cases of actinomycosis in the human subject were met with at an early date. So long ago as 1848 M. Louis had a patient with pulmonary disease, supposed to be cancerous, and in pus from this case M. Lebert of Zurich discovered and accurately figured the tufts of club shaped elements with which we were now so familiar. In late years nearly 200 cases had been described in the human subject, of which over 5 per cent. occurred in this country. Professor Crookshank thought there were two points especially worthy of discussion. In the first place, some manifestations of actinomycosis were still liable to be mistaken for tuberculosis. How far would this account for the very high percentage of cases of tuberculosis in cattle which had been reported by some observers? The question also arose, whether cases of actinomycosis ought to be placed in the same category as cases of tuberculosis, and condemned as unfit for food. If not, the distinction between the two diseases became a matter of practical importance, and the close similarity between the two diseases must be brought home to the minds of both medical and veterinary inspectors. With regard to inter-communicability of the disease between different species of animals, including man, the author had failed to find any evidence in support of the theory from clinical observation. He was not of opinion that the disease was contagious in the ordinary sense of the term.

Professor PONFICK (Breslau) said that he agreed in the main with Professor Crookshank's conclusions. In cattle the disease was generally transmitted by means of the fodder, especially by straw. He thought that in both man and animals the source was the same, and that the disease did not spread directly from one to the other.—Professor NOCARD (Alford) said that the observations of Professor Crookshank had been confirmed by all observers. He

desired to dwell on the hygienic and sanitary side of the question. The geographical distribution of the disease was very irregular. Bavaria, Scotland, Italy, and some of the Northern States of America had been much affected, and at the Veterinary Hospital at Utrecht there were always cases of the disease. In France it was very rare, and generally remained in an isolated form. He had never seen cases transmitted by contagion or infection. The disease appeared to him undoubtedly to spread by means of certain food-stuffs. The wholesale destruction of the flesh of the affected beasts appeared to him to be quite unnecessary. It was towards the biology of the parasite that the hygienist's efforts should be directed, that some rational and efficient mode of prophylaxis might be arrived at.

Actinomycosis.—M. DOYEN (Rheims) read a paper on three cases of Actinomycosis in Man, with lantern demonstration. During the last few months these observers have had occasion to examine in man three cases of actinomycosis, which in France, they say, is a very rare affection. If Liebert's case (1887) is excepted, the first observation was by Nocard and Leucet in 1888. Israel had, however, published three cases and Ponfinck one, and numerous other cases have been recorded in Germany, before attention was called to the disease in France, since 1882. The authors had been on the outlook for the disease, but it was not until Feb., 1891, that they had the opportunity of observing their first two cases. The first patient consulted them for an indolent abscess of the jaw with induration of the parotid. The cavity contained a bloody serous fluid in which were floating a dozen or more grains of actinomycosis; the whole mass was completely extirpated. The second case manifested itself as a deep phlegmonous induration at the base of the tongue, accompanied by a wooden-like hardness of the suprahyoid region. This case was cured by free incision, followed by curetting and antiseptic tampons. However, in neither of these cases could actinomyces be cultivated. The third case that had occupied their attention was marked by a chronic suppurative typhlitis; here the pus had remained sterile, and from an incision two small actinomycotic grains made their escape. Later deep phlegmon was found, and nearly a litre of pus and a thousand of the characteristic actinomycotic grains, the pus remaining quite sterile or unaltered throughout, so that cultures of the organism are now being prepared in the laboratory at Rheims. They found that it is extremely interesting to compare their preparations of actinomycosis in man with the corresponding disease of animals. In their first specimen they found ramified filaments arranged somewhat radially, that were coloured by Babes' method, but they never succeeded in bringing out the characteristic ray fungus appearance of the actinomycosis in cattle. Similar appearances were found in preparations made from the second case, but here, in addition, they observed a mycelial form, of which a further description is given. They were unable to see, even when the specimen had been deeply stained, the ramified filaments ending in crosses. Many of the filaments presented uncoloured portions, which appeared to be made up of a kind of sheath; in these were ovoid grains, probably spores, each thread ending in a kind of rounded button. In one case they observed the actinomycosis in the form of short curved rods somewhat like spirochætæ, but more often presenting several dichotomous branchings; these are apparently the young forms of the fungus. The sections of the walls of the extirpated focus did not give any radiate figures similar to those met with in the ox, but only filaments, corresponding both in their form and in their reaction to the aniline colours of the crosses, and some cells filled with short ramified rods. The culture and inoculation experiments are as yet incomplete; but they have been able to separate a kind of cladothrix, and also mycelial filaments with small enlargements at their extremities. The crosses, they pointed out, are extremely rare, and they maintain that not only by the courses of the disease, but also by the different appearances of the fungus one should be able to distinguish between the bovine and the human forms. The disease, however, is exceedingly rare in France, as since Nocard's cases there have only been four accurately described cases, the three above described and one purulent pleurisy described by Dr. Netter, a case described by Darier having occurred in Germany. As regards the etiology, these three cases all came from the environs of Rheims; they lived in the country, and one of them had acquired a habit of chewing grains of oats and of barley.

Dr. SERGE IVANOV (Moscow) had been to many of the European abattoirs to study this affection. In discharge of his duties as chief inspector of the Moscow Meat Market, he had seen over 2000 infected animals in the last two years. Most of these cases had been diagnosed in an early stage by the use of the microscope. Without this precaution, lesions in the shape of small tumours and abscesses might easily escape recognition.—Dr. SALMON (Washington) said that the statement as to the prevalence of actinomycosis in the United States had been greatly exaggerated. The question of condemning the carcases of animals affected with the disease was very important both to consumers and producers. If the meat were allowed to be sold it should be labelled with the name of the disease, and sold at a price commensurate with its quality. At present in America the utilisation of carcases affected to even a slight degree would not be tolerated, though it was probable that they had gone to an extreme in this matter.—Dr. GOODALL (Christchurch) had seen many cases of this affection, and he did not think that there was sufficient evidence to justify the belief that the disease was communicable from animal to animal. It was worthy of note that it most commonly affected animals when they were about two years old and were changing their molar teeth. In one case he found a piece of heather firmly wedged between the teeth, and it was easy to see if such a structure were charged with the organism, how it might easily penetrate into the socket of the jaw beside the loosening tooth. Our present knowledge seemed to indicate that this was a fungus which found its normal habitat in vegetable structures, and was only accidental in animals. He felt sure that a careful investigation of the diseases communicable from the vegetable to the animal world would be productive of very fruitful results. In this connexion the part played by entomology had been entirely overlooked.—Professor WALLEY (Edinburgh) said that he was not aware that internal lesions were commonly found in cattle. During the past few months he had condemned 140 carcases out of a total of 803 cows slaughtered on account of pleuropneumonia owing to their being affected with tuberculosis, but in no case was there evidence of external lesion, and he thought that if he had mistaken any large proportion of them for actinomycosis there would have been some external manifestation of the disease. He failed to see how the disease could be held to be not contagious; it certainly was so, even though the contagion might be transmitted only accidentally. He thought that it was commonest in poor districts, where the herbage was coarse, and it would be most important in future to observe the nature of the feed. He would not condemn a carcase where the lesions were localised to the tongue or skin. He insisted that this disease, together with tuberculosis, should at once be scheduled.—Mr. BARRETT, veterinary inspector, said that the disease was especially prevalent in Cambridgeshire and Lincolnshire, and he had found it most frequently on heavy lands. Two per cent. of the animals from Canada were said to be affected with the disease, which primarily affected the mouth and pharynx, and secondarily involved the lungs. The age of attack was usually one and a half to two years; and the animals did not appear to receive the disease from one another, but acquired it from the same source. He asked whether the cereals grown on clay soils might not contain a larger proportion of silica, and thus injure the buccal mucous membrane, and so favour the entrance of the virus.—Professor MCFADYEAN said that as to diagnosis he did not think that it would commonly be confounded with tuberculosis by veterinary surgeons. That this had been the case in Australia probably accounted for the statement made there that tuberculosis had been observed among animals which had never been housed. As a rule he thought that the prevalence of the disease had been minimised rather than exaggerated.—Sir HENRY SIMPSON remarked that in his district the disease was not endemic, and when imported, though it did not cease with the animals imported, yet it did not spread rapidly like a contagious disease. As to whether the meat from these carcases was fit for human consumption, he was content to permit its sale provided the locally diseased parts were cut away.—Dr. GEORGE FLEMING commented on the grave doubts which existed of the direct communicability of this disease to the human species. He thought that the Legislature should not be overburdened in dealing with this matter, which could be controlled by ordinary measures. If an animal were in good condition and showed no fever, then its flesh was good to eat, but the

actually diseased parts should not go into the market.—Professor CROOKSHANK, in reply, said he had studied the cases he had described clinically as well as microscopically. In comparing the disease with tuberculosis, it should be remembered that it was not by any means so virulent as tubercle. He showed two specimens in which the naked-eye resemblance to tuberculosis was very close indeed.

Anthrax.—Professor CHAUVEAU then read a paper on Anthrax and its relations to workers in various trades.—A paper on the same subject was also communicated by Professor DUGUID. The disease, he said, was known by the names of anthrax, charbon, miltzbrand,' &c.; it was distributed over the whole surface of the globe. It had no doubt been known from the earliest times, and probably some of those devastating plagues spoken of in the early and middle ages as attacking animals and spreading to mankind were anthrax, but was probably often confused with other diseases. It was not until recent times, when the microscope had been for some time used in the study of medicine, that we were able with certainty to distinguish anthrax from other diseases. Until the rod-shaped micro-organism which was characteristic of anthrax was discovered, the appearance of the disease was attributed to many different causes. This was the first disease in which a micro-organism was constantly found, and with the discovery of the bacillus of anthrax a new era began in the study of contagious or transmissible diseases. Anthrax was primarily a disease of animals, and usually began among cattle and sheep, and from them transmitted to other animals and man. While some kinds of animals were extremely susceptible to infection, there were others which possessed an amount of infection-resisting power which approached almost complete immunity. When few animals, cattle or sheep, died at intervals on a farm, it was seldom the source from which the infection came was satisfactorily made out. The weight of evidence was, however, in favour of the idea that it was usually by ingestion. The transmission to other animals, and to man afterwards, might take place in different ways, the chief of which were inoculation, ingestion, and inhalation. It assumed different forms, according to the mode of infection, in man—malignant pustule, intestinal anthrax, wool-sorters' disease. He mentioned the occupations in which infection most frequently occurred, and described the different forms anthrax assumed in animals. As it was primarily a disease of animals, and usually transmitted from them to man, the prevention in animals first should be considered, by legislation, inoculation (protective), and disposal of carcases. Legislation was necessary for its prevention in man. Destruction and disinfection of dangerous animal products should be rigorously practised.—Dr. LODGE said that his father was the first who had investigated the subject of anthrax in the town of Bradford. He described at length the sanitary regulations at present in force there to prevent the spread of the disease. He urged that official inspection should be applied to rag factories.—Dr. GEORGE FLEMING advocated the treatment by heat and drying as that best suited for the disinfection of wool and hair.—Dr. HIME (Bradford) said that the affection was first known in that town after the introduction of alpaca. The medical officers of health had brought home to the manufacturers the dangers they incurred in allowing their *employés* to become infected. The carcases of infected beasts were burnt instead of being buried.—Professor BROWN spoke of the difficulties in applying protective inoculation in outbreaks of anthrax. Though objections had been urged against burial, those against burning were even greater, unless the furnace were large enough to take the whole beast without cutting it up.

Veterinary Hygiene.—The last paper in this section was read by Mr. F. SMITH on this subject. He maintained that the hygienic training of the future veterinary profession was neglected, and support was asked for the following resolution: "Seeing the immense advantage to be derived from the application of Veterinary Hygiene, the Seventh International Congress of Hygiene and Demography respectfully urged the Royal College of Veterinary Surgeons to institute examinations in Veterinary Hygiene, and to have the subject taught in the schools." The value of veterinary hygiene to the State could not be over-estimated; its services had been demonstrated on a large scale in the army for many years past, by the absolute eradication of glanders, farcy, mange, canker of the foot, specific ophthalmia, &c., which formerly prevailed in the army but were now practically unknown.

Dr. GOODALL (Christchurch) having made a few remarks in criticism of this paper, Sir NIGEL KINGSCOTE declared the proceedings at an end. He referred to the pleasure it had given him to occupy the presidential chair, and he proposed a vote of thanks to all who had assisted in that section of the Congress.

A vote of thanks to the President was moved by Professor CHAUVEAU in a few well-chosen words, and, being seconded by Dr. SALMON (Washington), was carried with enthusiasm. The proceedings closed with a vote of thanks to the secretaries, proposed by Dr. HIME, seconded by Professor WALLEY, and acknowledged by Professor DUGUID and Mr. CLARKE.

SECTION IV.

INFANCY, CHILDHOOD, AND SCHOOL LIFE.

THURSDAY.

As shortly reported last week, the sittings of the Section were resumed on Thursday under the presidency of Mr. J. R. Diggle.

Neglected Children of our Towns and Cities.—Mr. W. MITCHELL, Vice-Chairman of the Glasgow School Board, read a paper, in the course of which, after describing the normal life of social waifs, he said the remedies for the evils he had dwelt upon were legislative, social, or individual. With regard to legislative remedies, he wished Parliament would interfere with the present indecent and scandalous practice of a parent lodging his adult children, boys and girls, with himself and his wife in a single apartment. He would suggest the framing of a law declaring it to be the duty of every parent to provide suitable and decent lodging for his children, and that in no case should girls over twelve years of age and boys over thirteen years of age, being of the same family, lodge with their parents in a single apartment. He would have it further enacted that if, in such cases, the parent was unable through poverty to provide sufficient lodging, application might be made to some properly constituted authority, and that it should be the duty of such authority to pay the additional sum required when satisfied of the inability of the parent. The Glasgow School Board did their best to aid the Town Council last year in procuring a Bill giving the magistrates stringent powers to deal with insanitary dwellings, and enabling them summarily to shut up those which were considered uninhabitable. The social remedial agencies which had been set on foot in our large towns and cities in other directions, on behalf of neglected children, were very numerous and very valuable. Individual effort might do much in the way of rescuing and succouring neglected children; much was being done in a voluntary and independent manner; and much more might be done; but it was not open to everyone to expend the time and money which this involved, while it was open to everyone who crossed the path of a neglected child to direct or lead that little one to the agency most suited to its case.

Professor KUBORN (Leipsic) followed with a paper on the Effects of Education in Belgium on Criminality and Mental Diseases, in which he stated that the spread of elementary instruction in that country had resulted in a diminution of crime.

Colonel PRENDERGAST, chairman of the Industrial Schools' Committee of the London School Board, read a paper on the Development of the Reformatory and Industrial School System in England. These schools, he said, had been working most beneficially for the last few years, and they would have a still greater share of success if the community at large would take a deeper interest in their development and results, and help the managers to place out the children in situations when they were ready for service. He alluded to what the Poor-law had been doing towards dealing with the juvenile population, and expressed the hope that something might be done to bring about some closer inter-communion between the Government departments presided over by the Home Secretary and the President of the Local Government Board.

Dr. VICTOR DESGUIN (Antwerp) followed with a paper on the Physical and Moral Training of Orphans, in which he advocated the abolition of orphan homes. Either boarding out, which combined the material and moral advantages of home life, should be recommended, or else agricultural colonies.

A discussion followed, in the course of which Miss

DAVENPORT HILL, referring to the first paper, said she could scarcely agree with some of the remedies suggested by Mr. Mitchell for dealing with neglected children, which, she thought, would rather aggravate the evils they all desired to see removed. In her view it would be most dangerous to attempt to remove parental responsibility, and to give free dinners to neglected children would, as her experience taught her, only induce parents to further neglect their children.—Dr. THOMAS GRIMSHAW, Registrar-General for Ireland, said that even if the existing law were strictly enforced and families were forbidden to live together in single rooms, the increase in the demand for rooms would be so great that it would be practically impossible to meet it. If Mr. Mitchell's suggestion that parents unable to provide suitable and decent lodgings for their adult children should receive assistance to that end were adopted, parents would at once turn their children into paupers to get rid of them.

Free Dinners for School Children.—A paper by the Rev. J. LLEWELLYN DAVIS on this subject was read by the Chairman. The author said that they must all recognise the fact that a considerable number of children were exposed to the chronic disadvantages of being insufficiently fed and clothed, and some people did not shrink from advocating as a remedy State interference, and the taking by force from the parents every child to whom they were not doing the minimum of justice. A long way short of this was the proposal to give a free dinner at the expense of the public to every child at school who would accept it. Any action which took the children off their parents' hands and made them the immediate objects of relief was to be deprecated. Where, however, parents were anxious to do their duty by their children, but were prevented by extreme poverty from getting for them the food they required, he pleaded that it was a better plan to give relief trustfully and privately to a parent than to distribute dinner tickets to selected children in schools. Having read the paper, the President desired to have it understood that he did not agree in all the conclusions arrived at by the author.—Mrs. BESANT opposed Mr. Davis's views in a paper which she proceeded to read on the question: Can Hungry and Half-clothed Children be efficiently Educated? She maintained that it was useless to attempt to teach a half-starved child. To force such a child was to kill it, and it was starvation and not the long hours at school that led to what was called "overpressure." She moved the resolution: "That this Congress, asserting the duty of the State towards its future citizens in the matter of education, declares that the feeding and clothing of destitute children are necessary for their efficient education."—Dr. PANKHURST supported Mrs. Besant's views, and the resolution was seconded by Lord MEATH, who agreed in the main with Mrs. Besant that it was expedient to feed hungry school children in order that an expensive system of education should not be thrown away. If a man could not pay for his children's food because he was a drunkard he ought to be punished, and if he could not do so because of his extreme poverty he ought to be treated as a pauper.—After further discussion, Mr. BERWICK moved to amend the resolution by adding the words "or neglected" after "destitute"; and by adding at the end the words, "Where such destitution or neglect is due to the misconduct of the parent or guardian, it is the duty of the Legislature to visit the misconduct with penal consequences."—The question having been put to the Congress, the resolution as amended was adopted by a large majority.

In the course of the sitting, Dr. OCTAVIUS STURGES, of Westminster Hospital, who on Tuesday had read a paper on St. Vitus's Dance in Children, introduced three children, inmates of the Children's Hospital, to afford an illustration of what he there advanced with regard to the symptoms of incipient disease. Many children, he said, were punished at school for inattention who were suffering from this nervous disease. A simple and certain test, which any teacher could apply, was to require the child to hold up its hands straight above the shoulder, when any child suffering from St. Vitus's dance would be unable to do so without the hands visibly quivering or falling either backwards or forwards. The little patients whom he introduced to illustrate this point manifested the inability to maintain the hands steady when called upon to do so.

FRIDAY.

The papers to be read in this Section at the Friday sitting were divided into two groups, the first dealing with the best methods of training and caring for the mentally feeble, epileptic, and imbecile children, and the second embracing consideration of deaf mutes and blind children. Mr. J. R. Diggle, chairman of the London School Board, again presided.

Care and Treatment of Feeble-minded Children.—Dr. FLETCHER BEACH (Darenth) read a paper on this subject, in which he referred to three perfectly distinct classes of cases, and said that the care and treatment of each should proceed on different lines. With respect to the first class little had yet been accomplished. Some time ago the Charity Organisation Society suggested that workshops should be provided for them, where they might work during the day, returning home at night; but the suggestion was not carried out. The author proposed that homes should be prepared for them, where they could be trained mentally and physically, and where medical treatment could be pursued. He objected to their being sent to day-schools, because it was impossible to supervise their diet and hours of sleep, to guard them against states of excitement in their own family, and to ensure that the medicine prescribed was given.

As bearing on the same subject, the President read a paper by Dr. SHUTTLEWORTH, Royal Albert Asylum, Lancaster, on the Care of the Mentally Feeble as distinguished from the Imbecile Child. The paper pointed out that mentally feeble children were often the victims of their surroundings. Weak bodily health and inherited tendency to nervous weakness were causes of defective or irregular mental action. On the question of mental improvement, one of the essentials was an improvement of general nutrition, and the author also advocated specially adapted education for the feeble-minded pupils found in elementary schools, either in specially organised classes, in separate day schools, or in separate institutions. At any rate, there was a strong necessity for distinct arrangements for this class in any truly national system of education.

A third paper on a Proposed Method of Collective Investigation into the Condition of Feeble-minded Children was contributed by Professor LUDWIG STRUMPELL (Leipsic), Dr. KOCH (director of the State Lunatic Asylum at Würtemburg), Dr. EMIL SCHMIDT (Leipsic), and Professor HASSE (Leipsic). The purport of the paper was embodied in a resolution submitted to the Congress by Dr. KOTELMANN as follows: "That this Congress do appoint a commission to inquire into mental feebleness in children."

Dr. J. LANGDON DOWN, inaugurating a discussion on the papers, expressed his pleasure at the action of the London School Board in the direction of giving a separate and distinct training to feeble-minded children.—Mr. J. P. RICHARDS seconded the resolution contained in the German paper.

Dr. GUYE (Professor of Otology at Amsterdam University) continued the discussion in a paper on Aprosexia and Headache in School Children. Various authors, dealing with the study and treatment of diseases of the nose, had published cases where disturbance in the cerebral functions were prominent.—Dr. ED. VON HOFFMANN also took part in the discussion.

Dr. WARNER moved to amend the resolution before the Congress as follows: "That this Congress do appoint a Commission—consisting of persons severally conversant in (1) examination of the physical condition of children, (2) mental condition and diseases, (3) education and methods of dealing with children; (4) statistical compilation of facts—whose duty it shall be to inquire into the condition of children in schools and elsewhere, and carry out the same upon a fixed plan. This Congress empowers the Commission to add to their number, and to appeal to recognised authorities or sources for assistance if necessary."

The resolution, as amended, was adopted.

Education of the Blind.—The first paper of the second group was one by Dr. E. J. CAMPBELL, Principal of the Royal Normal College for the Blind, on the "Education of the Blind." The paper was read by Mrs. Campbell.—Dr. Campbell submitted the following resolution: "That the time has arrived when the blind should have a well graded, practical, comprehensive course of education. That the training of the blind should not be conducted on a charitable basis, but form a part of the national system of education."

The resolution was formally seconded by the PRESIDENT.

Physical, Manual, and Technical Education of Deaf Mutes.—General MOBERLY (chairman of the Subcommittee on the Instruction of the Blind, Deaf, and Dumb,

London School Board) read a paper on this subject. He said that all the educational work of the London School Board in this direction was carried out in day classes. The attendance of children under the Education Act of 1870 was theoretically compulsory, and extended to all children between the ages of five and thirteen—blind, deaf, crippled, &c., were included. In practice, however, the regulations have failed in a most disappointing degree.

The Hygiene of Speech in Children.—Dr. H. GUTZMANN (Berlin) read a paper on the Hygiene of Speech in Children, which he said was to be studied in three periods of development. In the first period the child merely produced "natural sounds," which were caused by the same muscular impulse which moved the child to sprawl or kick. In this period one could not speak of the hygienic operation of speech, but in the second period the child learned to distinguish sounds and tried to imitate, and within this period lay the most important points of the hygiene of speech. In the third period the child already makes use of speech to express its thoughts. Here lay the centre of gravity of the hygiene of speech.

Acuteness of Vision of School Children.—This was the subject of a paper read by Dr. KOTELMANN (Hamburg), who touched on the sharpness of sight in hypermetropic, emmetropic, myopic, and astigmatic school children, the difference between the acuteness of vision of the right and left eye, and the sharpness of sight in the different degrees of hypermetropia and myopia in school children.—Dr. A. BRONNER (Bradford) also contributed a paper on the importance of detecting and treating defects of vision and hearing in the children of our Board schools, in which he pointed out that many so-called stupid children owed their dulness to defects of vision and hearing.

The various papers were then discussed by Dr. EDWD. GALLARDET (president of the Deaf-Mute College, Washington), Mr. W. VAN PRAAGH, Dr. GLADSTONE, and Dr. GUTTMANN.

Dr. CAMPBELL'S resolution in favour of a well-graded system of education was, on the suggestion of General MOBERLY, extended so as to embrace, not merely the blind, but also the deaf and mutes, and, as thus amended, was unanimously adopted.

On the motion of Dr. LEO BURGERSTEIN, seconded by Mr. JACKSON, votes of thanks were passed to the President, Vice-Presidents, and honorary secretaries of the Section. The President having briefly acknowledged the votes, the business of the Section came to a close.

SECTION V.

CHEMISTRY AND PHYSICS IN RELATION TO HYGIENE.

THURSDAY.

The Hygienic Importance of Copper.—Professor LEHMANN read the first paper, which bore this title. The author pointed out that, in spite of many investigations, great difference of opinion still exists with regard to the hygienic importance of copper. Men attacking and defending the deleterious action of copper have often gone too far in the matter. The paper dealt only with the importance of such copper salts as enter the organism through artificial greening of vegetables, through addition of sulphate of copper to bread, and through careless use of copper vessels. It was not proved by one well-observed case that copper salts—that is to say, a quantity of 150 to 200 milligrammes of copper having entered the organism of a healthy adult at one time and in a certain dilution in the course of eating and drinking—can cause a disturbance in health worthy of any remark. During copious meals about 200 milligrammes of copper can enter the body with preserves and bread without being noticed to any extent by the senses. In no case of severe acute copper poisoning through copper vessels recorded in the literature of the subject had it been shown that anything like the amount of copper necessary to injure the organism—that is to say, 150 to 200 milligrammes—had been taken. Ptomaines and toxalbumins were often the true cause of the trouble. In other cases it has been shown that no reason exists for regarding the small quantities, often merely traces of copper, which were found as the cause of death. A chronic copper-poisoning through the entrance of small quantities of copper salts (twenty, thirty, or even fifty milligrammes of copper daily) does not exist in man or animals, although copper is absorbed in considerable quantities, stored in the liver, and excreted by means of the bile, the intestines, and the kidneys. Deduced from these considerations, a direct injury of acute or chronic character is not to be feared from such quantities of copper as find entrance into the body through moderate and technical *reverdissage*, preparation of bread with copper and somewhat careless use of copper utensils in the household; though carelessness in culinary work may be the cause of acute vomiting and purging, but hardly anything more serious. Hygiene demands the prevention of the use of copper-colouring for preserved vegetables because: (*a*) the danger of abuse exists (the careless addition of large quantities); (*b*) there is neither any improved taste of the preserves, nor any additional preservative power gained; (*c*) no reason exists for colouring the preserves more intensely green than they are when freshly cooked. The addition of small quantities will be punishable as an adulteration and imposition as to the quality &c, not on hygienic grounds. The addition of copper to bread should be absolutely forbidden, because: (*a*) there exists the danger of careless addition in large quantities; (*b*) it is possible to bake with spoiled and, under circumstances, injurious flour; (*c*) it becomes possible to add a larger quantity of water (6 to 7 per cent.). As far as the severe cases of so-called copper poisoning through the careless use of household utensils is concerned, a severe copper poisoning of an adult can no longer be considered, unless it can be proved that at least 200 milligrammes of copper have been consumed by the unfortunate individual. Much more care is to be desired than formerly; that is, that in legal judgment the possibility of other poisoning—namely, ptomaines and toxalbumins—be considered. A case of copper poisoning should never be taken for granted simply because the presence of no injurious substances could be ascertained other than copper, which is so easy to find even in traces.

The PRESIDENT was struck with the large amount of copper which, according to Professor Lehmann, was tolerated in the system. He had never heard of the addition of sulphate of copper to bread in England.—Mr. GOODFELLOW had examined 300 specimens of bread in England, and not one contained copper. Of samples he had procured in Holland, four out of seven specimens contained sulphate of copper.—Dr. W. J. RUSSELL was glad to find that copper did not deserve the bad character which had been given to it, as they were all aware of the extreme usefulness of this metal for cooking purposes and in the arts.

The Action of Water on Lead.—This paper was by Dr. GARRETT. The action of water upon lead is, the author considered, a process of oxidation, the main result being the production of a white, crystalline, insoluble oxyhydrate of lead. The formation of this insoluble lead-salt is well seen in all waters which act markedly on lead and are not of acid reaction, such as stale distilled water. All natural waters that have a decidedly acid reaction act on lead, the acid in the water dissolving the oxide as it is formed; and the first result is a clear solution of lead-salt. The quantity of lead thus got into solution is dependent upon the quantity of acid originally contained in the water. Much of the lead-salt formed and dissolved by an acid water is, under certain circumstances, ultimately deposited. Waters which are decidedly alkaline by reason of containing considerable quantities of carbonate—e.g., carbonate of lime—are prevented from acting on lead by the formation upon the surface of the metal of a closely fitting insoluble coat, which is presumably a carbonate of lead. It is possible that waters exist in which this last-named rule does not hold. Certain neutral salts other than carbonate, being contained in the water, help or hinder the action, and affect the solution of the oxyhydrate of lead after its formation. The rate of action of water on lead is increased by increase of temperature, at least up to a certain degree. The main action of water on lead is due, the author contended, to the presence in the water of a nitrate (or some partially oxidised organic nitrogenous compound which admits of being reduced by the lead and reoxidised by the air giving the reaction of nitrite when reduced). The continuation of action observed to take place in a nearly neutral water, where oxyhydrate of lead is produced for weeks together, is due to nitrite acting as an oxygen carrier between the air and the lead. The rate of action is increased when copper, silver, and other metals are in contact with the lead beneath the water. The rate is diminished when zinc, tin, and other metals are similarly in contact with it, these metals suffering oxidation in preference to lead.

The PRESIDENT briefly referred to the case of Sheffield as

illustrating the importance of the subject. He asked Dr. Garrett whether he had a solution of the difficulty to offer.—Dr. RIDEAL suggested coupling certain metals with lead as a remedy.—Mr. MAGUIRE (Dublin) said that fifteen years ago the water supplied to Dublin was found to attack lead. Since using lead containing 3 per cent. of tin no case of lead poisoning had occurred.—Dr. RUSSELL mentioned a case in which a very pure water from Dartmoor had acted strongly on a galvanised iron pipe. The water contained zinc in solution, which was precipitated on boiling as basic salt. The fur in the kettles which had been used for boiling the water consisted almost entirely of basic zinc salt.—Dr. P. FRANKLAND did not agree with Dr. Garrett that the action was due to nitrates or nitrites, as water free from these substances acted equally well. He assigned it rather to organic matter of some kind. In the case of a Lancashire water he had found that the addition of carbonate of soda was effectual in preventing the action.—Dr. GARRETT here remarked that in no instance had he met with a water entirely free from nitrate.—Professor LEHMANN approved the addition of chalk as a remedy, and quoted an instance in Germany where no cases of lead poisoning had happened since this treatment had been adopted, the water having hitherto acted strongly on lead.—Sir C. CAMERON had placed some carp in the water supplied to Dublin, which had been allowed to stand in a pure leaden tank. The fish were soon attacked with hemiplegia, they could not dart straight for the bait that was thrown in, and their bodies gradually assumed a crescent form through paralysis. In a similar tank, but constructed of lead containing 3 per cent. of tin, nothing unusual happened, while chemical tests showed the absence of lead.—A gentleman from Blackburn stated that in that town a lead pipe, containing 3 per cent. of tin, had been in use for some time with the same result—that no lead was taken up by the water.

What is the Importance of Magnesia in Drinking-water?—This was the subject of a paper read by Dr. PERCY F. FRANKLAND. The author called attention to the difference of opinion existing at the present day with regard to the hygienic importance of magnesia in drinking-water. Some authorities on water view the presence of magnesia as of no more consequence than hardness in general, whilst others consider that the presence of even a few grains per gallon renders the water of doubtful quality for continuous use. It is highly desirable that the possibility of mischief resulting from the use of magnesian waters should be fully discussed and a conclusion arrived at, as it not unfrequently happens that waters which are otherwise of most excellent quality are objected to in consequence of their containing a somewhat larger proportion of magnesia than is usual in this country. Comparatively few analysts put themselves to the trouble of determining this base at all, with the result that a large number of waters are in use in which the presence of any exceptionally large proportion of magnesia is quite unsuspected. The author, after referring to a number of magnesian waters which had come under his notice, invited a discussion of the question, especially with a view to eliciting the opinion of foreign authorities who had experience of the waters in the extensive dolomitic districts of the Continent.

Sir C. CAMERON said that there was a very large quantity of magnesia, as carbonate, chloride, and sulphate, in the waters of Ireland; but in his opinion the presence of these salts could not be considered as likely to cause injury to health.—Mr. MAGUIRE (Dublin) mentioned the case of a water that contained much magnesia which attacked iron so strongly as to choke the pipes. It also attacked lead.—Mr. DROWN (Massachusetts), well known in connexion with the splendid analytical researches recently carried on there, gave some interesting particulars concerning the mineral constituents of the water supplied to that State.

Analysis of Air.—Dr. BAHADURDJI (Bombay) followed with a very interesting paper on this subject. He complained that air had not received the attention from chemists that it had deserved. He considered it of equal importance to periodically examine the air, as well as food and water &c. He dwelt upon the baneful influence of rebreathed air, and urged that analyses should be made from time to time of the air not only of the different parts of a town, but also of domestic houses, workshops, public halls, theatres, &c. He mentioned that lung disease prevailed in India to a large extent, notwithstanding the dryness of the climate and the great regularity of its temperature, and he ventured to suggest that the prevalence of the disease was in great measure due to contaminated air.

Dr. ODLING referred to the excellent work of Dr. Angus Smith, who had made many analyses of the air of Manchester.—Sir C. CAMERON agreed that a systematic examination of the air of the towns in a hot country like India should from time to time be made; but he thought that a biological rather than a chemical examination would be more likely to lead to useful results.—Mr. GOODFELLOW suggested that the injurious action often attributed to carbonic acid was really due to the rebreathing of exhaled organic matter. He had noticed the healthy appearance of men employed on mineral water works, where the atmosphere often contained a large amount of carbonic acid.

The Effects of the Respiration of Carbonic Acid on Man.—This paper (by Dr. MARCET) was read by the Secretary, and bore closely upon the previous subject. It was dealt with under three headings—(1) the source of the presence and accumulation of carbonic acid in the air breathed; (2) the action of re-breathed air on the human body; and (3) the action of carbonic acid gas breathed in volumes, which either produce insensibility or prove fatal. The conclusions arrived at were the following: 1. That when air containing an excess of CO_2 is breathed, the gas accumulates rapidly in the blood, and under such a condition the function of nutrition is more or less interfered with; and also that people working in ill-ventilated rooms and buildings should, towards the preservation of their health, sleep in as pure an atmosphere as possible, where they will rid their blood of the carbonic acid absorbed in the daytime. 2. That the effects produced by inhalation of carbonic acid gas depend greatly on the rapidity of the exposure. The sudden inhalation of air containing a large proportion of the gas may produce rapid insensibility and death, while this same air might have been breathed for some time with a certain degree of impunity had the carbonic acid present been increased gradually. 3. That when life is threatened by the inhalation of carbonic acid, there is no reason to despair of artificial respiration so long as the heart is beating; the gas will diffuse rapidly from the blood into the air with which the lungs are inflated, and thus be carried out of the body.

Sir C. CAMERON mentioned the experiments of Hammond on this subject. He had shown that where the carbonic acid had been removed from expired air by chemical means, the effect on animals was the same as when it had not been removed. This would point to the toxic effect being due to something else other than carbonic acid.—Dr. ODLING said he remembered hearing of carbonic acid being used for anæsthetic purposes, and the effects were no worse than those following on the employment of laughing gas.

The meeting then adjourned.

FRIDAY.

The subjects of the papers read before this Section to-day were of a somewhat miscellaneous character. Dr. BUCHAN opened the proceedings with a paper on Meteorology in relation to Hygiene. He found as a result of his observations that the highest mortality in London occurred during the months of lowest temperature, and he noticed that the death-rate rose in proportion to the density and persistency of fog.

Drs. RUSSELL, LONGSTAFF, TRIPE, and NORTH entered into an interesting discussion, in which the baneful influence of fog and the effect of continued rainfall on health were chiefly referred to.

Mr. JOHN GOODFELLOW followed with a paper on the recent Hygienic Improvements in the Manufacture of Bread. The author referred to the chief objections to ordinary whole-meal bread, which were: (1) the large percentage of waste, averaging 12½ per cent; (2) the increased waste of other foods produced by the ingestion of such whole-meal bread; (3) the unpleasant taste produced by the comparatively flavourless particles of bran; (4) the irritating action of the bran; (5) the rapidity with which whole-meal bread becomes dry and stale. The first four objections depend on the presence of course particles of bran. The last objection depends largely on the state of the whole-meal as regards moisture before being made into bread. The chief efforts towards improvements in whole-meal bread, then, are necessarily directed towards the objects of (1) obtaining a very fine meal, and (2) obtaining a very dry meal. Two varieties of whole-meal bread—Triticumnia and Cyclone—were mentioned as demonstrating the possibility of manu-

facturing such bread in which the bran particles are so fine as to entirely obviate any irritating effects. On the other hand, white bread is deficient in (*a*) proteid material; (*b*) fat; (*c*) mineral matter, more especially phosphates, sulphur, and chlorine. Any process which secures (1) a higher percentage of proteids, (2) of fat, (3) of phosphates &c., and (4) of soluble matter may be regarded as a hygienic improvement in the quality of the bread. Certain specimens of brown and white bread said to possess these advantages were then alluded to.—The PRESIDENT, Dr. ROOS (Amsterdam), Mr. CASSAL, and Sir C. CAMERON entered into a short discussion, the latter expressing his opinion that good white bread was certainly to be preferred to many kinds of coarse brown bread. White bread was more digestible than the brown variety.

Dr. G. T. MOODY and Mr. F. W. STREATFIELD next read a paper on Aerial Disinfectants. The method adopted depended upon the production and dissipation of iodine or bromine vapour from an ordinary night-light. By incorporating iodoform or bromothalene with the wax, iodine or bromine is steadily given off in the gaseous condition when the candle is lighted. (An examination of these candles was made by THE LANCET some time ago, when the ingenuity of the idea was recognised, although it was pointed out that they should only be used at the discretion of the medical adviser.)

At the conclusion of the proceedings of this interesting Section, Sir HENRY ROSCOE moved a vote of thanks to the Secretaries, which was seconded by Sir C. CAMERON, who proposed a similar vote to Sir Henry Roscoe for presiding. The President and Secretaries briefly responded.

SECTION VI.

ARCHITECTURE IN RELATION TO HYGIENE.

THURSDAY.

Workmen's Houses in Paris.—As briefly reported in our last week's issue, the first paper read in this section, over which Sir A. Blomfield, A.R.A., presided, was one by M. EMILE CACHEAX, Paris, on the Insanitary Condition of Tenement Houses in Paris, in which the author discussed the relative advantages of living in a suite of rooms, or flat in a large block, or in a self-contained house, and contended that if self-contained houses were built beyond the city area the scheme must include a sufficient number to give the tenants such advantages as are met with in towns, and that the rates and municipal charges would have to be distributed more equitably than at present.

Common Lodging-houses.—Mr. P. GORDON SMITH, F.R.I.B.A., architect to the Local Government Board, next read a paper on Common Lodging-houses, in which he reviewed the legislation that had been passed for the regulation of such establishments, and contended that the accommodation provided should include dormitories for each sex, day rooms and kitchen, with scullery and wash-house; also the necessary conveniences, lavatories, &c.; and separate rooms or cubicles for married couples. He urged that the building used as a common lodging-house should possess the conditions of wholesomeness needed for dwelling-houses in general; and it should have the arrangements fitting it for its special purpose of receiving a given number of lodgers. Much as he should like to see a larger minimum of space than that of 300 feet now allowed to each adult lodger, he was not prepared, since the difficulty of securing a larger allowance would be insurmountable, to suggest that it should be increased.

Flat Roofs as a Place of Recreation in Towns.—Dr. WILBERFORCE SMITH, in a paper under this title, maintained that the advantages in crowded districts of constructing and utilising flat roofs seemed indisputable. Sloping roofs were unemployed areas, while flat roofs represented an additional stage added to each building without increased height, and so far from involving any encroachment on the sky view effected in most cases a gain of sky space.

Block Dwellings.—Dr. J. F. J. SYKES, one of the honorary secretaries of the Section, then read a paper on "Block Dwellings," in the course of which he stated that the dwellings of the working classes might be defined as unfurnished dwellings, consisting of from one to three or four rooms, generally let in weekly tenancy at rentals from 2*s.* to 7*s.* 6*d.*, or even to 10*s.* New dwellings varied between two extreme kinds, cottage and block. To provide for increase of population, cottage dwellings on new estates in the suburbs or the country, coupled with cheap and expeditious transit, were most desirable; but to protect the health of town dwellers the demolition of permanently insanitary and over-crowded dwellings was necessary. Bye-laws were urgently required for controlling the construction of block dwellings, and unsightliness might be overcome by the artistic architect at moderate cost. Figures and facts, apart from town life, did not point to any greater unhealthiness of block as compared with cottage dwellings, but infectious diseases required special provision and regulations. The aim should ultimately be to provide, in a better class of block buildings, self-contained homes, with attractive comforts and surroundings.

Mr. EDWARD BOND, in the course of the discussion on these papers, said experience showed that tenants were disinclined to use flat roofs. As to block houses, the system broke down if the people were not well looked after, but if the houses were properly constructed, the superintendent carefully selected, and proper regulations laid down and observed, the life, even of the poorest classes, might in block dwellings be made as comfortable as the imperfect conditions allow.—Mr. NOBLE SMITH said that flat roofs, like all reforms, would take some time to introduce, but when adopted would be an enormous benefit as a recreation place for children.—After some further discussion, the following resolution, proposed by Dr. SYKES, and seconded by Mr. PLUMBE, was unanimously adopted: "That special legislation is necessary to control the construction of block dwellings in cities."

FRIDAY.

English Isolation Hospitals.—Dr. THORNE THORNE read a paper on English Isolation Hospitals. His object was to show the advance which was steadily being made in this country by sanitary authorities in the provision of small local hospitals in which to isolate first cases of infectious diseases, and so to prevent the spread of infection. Some 400 sanitary hospitals have now been provided; they are so arranged that at least two different diseases in both sexes can be isolated in pavilions which are aerially distinct; the buildings are now made attractive, so as to lead people to use them; and the welfare of the sick is especially provided for by such construction as ensures to each patient 2000 cubic feet, 156 square feet of floor space, and 12 feet of wall space in a properly ventilated ward. Different designs are resorted to, according to the character and amount of population of the district, and the plans of the Warwick and Leamington Joint Isolation Hospital were referred to as embodying the most recent views on this subject.

Mr. KEITH D. YOUNG, F.R.I.B.A., read a paper giving a description of the hospital referred to by Dr. Thorne—the Heatheot Isolation Hospital, Leamington—which showed that it had been erected on high ground, six acres in extent, of which two and a half were enclosed and appropriated to the hospital. The buildings were four in number—the administration block, isolation block, ward block, and laundry block—each entirely detached from the remainder; all, except the administration block, being one storey high.

The Rev. C. E. FEW, Vicar of Seal, Sevenoaks, then read a paper on Local Isolation Hospitals as opposed to a Central Hospital, in which he advanced the theory, speaking only for country districts, that it must be better to treat fever cases in the locality in which they arise rather than transport them to large central hospitals. The alternative scheme which he suggested was to map out every district, and to choose sites suitable for treatment of fever in a certain area, the smaller the better, to prepare these sites as to drainage and water supply, and to place on each a small iron room, with walls about 8 ft. high, to be used as a kitchen and laundry. The sanitary authority should provide a certain number of portable hospitals, say two for each relieving officer's district, and two extra ones to be kept at the union house on a two-wheeled cart, like a lifeboat, ready for immediate transmission if required, to supplement the two local wards. These rooms should be capable of holding three, or, at a push, four patients. These sites might be in meadow lands, 40 ft. from the road, the iron room surrounded with a barbed iron fence sufficient to enclose it, with the understanding that, when occupied, the zone of 40 ft., if considered necessary, should be wired off. The nearest point on the road could be, when required, connected by a wire to run a basket on wheels for the transport of goods, and at very little expense a pipe could be laid

from the road to supply drinking water from a water cart. The drainage should consist of two cesspools ready dug, one for slop water, the other for the infected sewage; the earth excavated should be kept dry and available for earth closets. A long discussion took place, in which Mr. G. H Fosbrooke, Dr. Nasmyth, Dr. Maxwell Ross (Dumfries), Mr. Thomas F. Wakefield (Richmond), Councillor Atha (Leeds), and others took part.

Asylum Construction and Arrangement.—A paper by Mr. G. T. HINE, F.R.I.B.A., on Asylum Arrangement and Construction, was read by Dr. CLAYE SHAW, medical superintendent of the Banstead Asylum. The author pointed out that much could be done towards the cure of insanity by a careful designing and construction of the asylum; and, speaking of the pauper institution, laid down a series of conditions to be observed as to the selection of site, elevation, nature of soil, water-supply, &c. The system of ventilation adopted should fulfil the following conditions:—(1) offer the least risk of injury to patients; (2) be under the perfect control of the engineer, and the temperature should be easily regulated; (3) combine the double duty of heating and ventilation; (4) ventilation should not depend on natural atmospheric action; (5) should be reasonably economical in working.

DR. RICHARD GREENE, F.R.C.P.E., medical superintendent of the Berry Wood Asylum, contributed a paper on the same subject, in which it was urged that a gravel soil site should be secured if possible, a southern aspect insisted on, the best materials employed, the roof tiled, and double-hung sash windows discarded in favour of a modification of the French casement. Whatever form of construction be adopted, the blocks should be so arranged as to lie around or on either side of the administrative department, which thus would form the centre, and contain the various offices, including a large recreation hall.

Registration of Architects.—On the motion of Dr. SYKES, seconded by Mr. ROGERS FIELD, a resolution was adopted to the effect that the motion passed by the Section on State Hygiene as to the statutory examination and registration of architects should be considered by the Congress before it was definitely adopted, and expressing the opinion that the question should have been referred to the Section on Architecture in relation to Hygiene.

The business of the Section was then brought to an end.

SECTION VII.

ENGINEERING IN RELATION TO HYGIENE.

THURSDAY.

Self-purification of Rivers.—Dr. PERCY F. FRANKLAND read a paper, the subject being the Present State of our Knowledge concerning the Self-purification of Rivers. The author described the more important experiments which had been made on the subject in this country. The self-purification of rivers had frequently been supposed to justify the use of river water, which has received sewage contamination, for town supply, but the evidence of purification was wholly inadequate to justify such a course. Unanimity only existed with regard to self-purification by sedimentation, a process which can never guarantee the absence of danger, whilst of the removal of dissolved organic matter to any large extent there was no evidence at all. Of far more importance in securing the greater safety of water-supplies from rivers and surface sources generally was their efficient filtration through sand.—During a brief discussion attention was drawn to the rapid destruction of certain organisms when introduced into running water.—Dr. FRANKLAND, in reply, took occasion to describe the result of experiments he had made in introducing anthrax bacilli into water, where he found, as Dr. Odling had found, that there was a rapid destruction; but he found this also, that anthrax bacilli were capable of producing spores which possessed enormously greater powers of endurance than the bacilli themselves. In the experiments of Professors Odling, Crookes, and Tidy, the organisms were destitute of spores. These spores lasted for weeks or months—in fact, nobody knew for how long. He thought that it would be very undesirable that anyone should go away with the notion that these organisms were rapidly destroyed in water. There was no doubt that a sedimentation took place, especially in sluggish rivers; but there was no evidence that the organisms were destroyed, and there must always be danger that floods might stir up these germs, and carry them farther on. There could not be a simpler and more perfect method of defending one's self against infection from contaminated drinking water than by boiling the water. So much infection was conveyed by milk, that the boiling of milk was even more important.

The Treatment or Disposal of Town Sewage.—Mr. CHARLES JONES, A.M.I.C.E, read a paper on the Refuse Destructor. Having dealt with the nature of town refuse, and shown that no portion could be economically saved, he alluded to the attempts made to meet the difficulty by destroying it with fire, and described the most improved destructor, which, with the fume creator for dealing with the gases given off, had now solved the difficulty. He contended that the "destructor," if properly worked, might be used anywhere without the slightest fear of any complaint arising.—Papers on the refuse question were also contributed by Dr. WEGL, Mr. J. F. MEYER, and Mr. W. G. LAWS.—Dr. MILLER BRUCE also read a paper on the subject, the title being, "How best to dispose of the Refuse of Large Towns."

FRIDAY.

Municipal Engineering. — Mr. HENRY BOULNOIS, M.Inst.C.E., read a paper on Municipal Engineering. To illustrate the importance of the office of the municipal engineer, and the varied character of the work devolving upon him, Mr. Boulnois exhibited and explained a diagram which showed the duties to include engineering, architecture, law, administration, bookkeeping, and miscellaneous. Mr. Boulnois said he feared it would be many years before the unostentatious character of the work of the municipal engineer would be fully appreciated.—Mr. H. ALFRED RŒCHLING, C.E., said the difficulty of the municipal engineer was less hard work than the worry to which he was sometimes subjected.—Mr. A. R. BINNIE held that as municipal engineers did their best to perform their duty, they would be better appreciated as time went on.—Mr. THORNHILL HARRISON recognised the importance of the work of municipal engineers, and held that they were entitled to some assistance from the Government.—Mr. BOULNOIS replied.

Epidemics and Water-supply. — Herr W. KUMMEL (Altona) read a paper on the epidemics of typhus in Altona in February last. He explained that in Altona water taken from the Elbe is filtered. Hamburg does not do so, and yet was free from the disease. Three to four weeks before the appearance of typhus fever in Altona the number of bacteria increased from 50 to 80 per cubic centimetre to 1500, and the doctors therefore suggested that the typhus has been spread by the filtered water, and that the number of typhus microbes must have been largely increased by the filtration. The question therefore arose, Was it possible or probable that the typhus was spread by the water, and the typhus bacteria cultivated in the filtration beds?

Brigade-Surgeon R. PRINGLE, M.D., late of the Sanitary Department H.M. Bengal Army, then read a paper on the Water-supply of India. He drew attention to the fact that the subject to which he was about to allude was the question of the water-supply of a fifth of the population of the globe, and that for all practical purposes they were total abstainers, and he discussed this under the following heads: The supply from (1) wells, (2) rivers, (3) ponds; artesian wells as a source of water-supply being yet under trial. Dr. Pringle stated that, whatever might be said about the sanitary progress in India, as far as it related to the water-supply it was simply disgraceful, not with reference to that of the poor ignorant villagers, but as regards cantonments, rest camps, and company grounds, roadside wells, and railway stations, and he added that, up to the time he retired in 1884, nothing whatever was done either to procure or secure the purity of this water-supply, though he had annually reported on it; and he mentioned the "Meeta Coonh," a sweet-water well at Agra, as an instance of appalling neglect. The river supply of drinking water was always open to objection, as Indian rivers, he added, were too often used as roads for the mortal remains of Hindus on their journey heavenward. Pond water was equally objectionable, Dr. Pringle said, for, though bodies may not be thrown into them, yet other equally dangerous impurities are met with in these ponds, and though some muds were credited with purifying the water, he preferred the boiling point. The remedies for this highly unsatisfactory state of the water-supply lay in more attention to these wells. Year after year, as he pointed out, he had alluded to this in his sanitary reports, and the present increase of typhoid

fever was, he maintained, a direct retribution for a sanitary neglect which was little short of criminal, and the scenes Dr. Pringle described as occurring at railway-station wells, and Lord Dalhousie's remarkable forethought on this point frustrated, seemed almost incredible. The impurities at the foot of the wells, in form of leaf mould, was suggested as the source of much of the fever suffered from, and to remove this a bull dredger, as he described it, seemed admirably suited for the purpose. This paper, according to Dr. Pringle, was a remarkable review of sanitary indifference instead of progress.—Mr. MAIGNEN held that with sand filtration the microbes were never removed, but remained in the sand, and might bring about epidemics. To thoroughly purify water it should be dealt with in a chemical way.—Dr. W. J. SIMPSON (Calcutta) thought they should see that the water was pure to begin with, instead of trying to purify an impure supply. As to Indian matters, if Calcutta had a constant water-supply cholera would cease, except to the very small extent to which it was imported from the villages.—Mr. BINNIE maintained that nothing could be more disgraceful than the condition of an ordinary village well in India. Bombay was far in advance of the other towns in India, getting its water-supply from a pure and uncontaminated source. It was clear that sand filtration was not a perfect precaution.

Señor P. GARCIA FARIA (Barcelona) having read a paper on the Subsoil Drainage of Towns, the proceedings of the Section terminated.

SECTION VIII.

NAVAL AND MILITARY HYGIENE.

Statistics of Medical Cases admitted into the Seamen's Hospital, 1880–89. — Dr. JOHN CURNOW and Mr. W. JOHNSON SMITH gave an account of the total number of medical cases admitted during the decade, which were 7718. They gave (1) the number and percentage of common diseases, such as rheumatism, cardiac valvular disease, pleurisy, pneumonia, phthisis, and chronic albuminuria; and (2) of the rarer diseases from which sailors in the mercantile marine suffer in greater proportion than residents in this country, such as enteric fever, ague, aneurysms, dysentery, and abscess of the liver. The authors specially called attention to the large number of cases of phthisis (nearly one-seventh of the whole), and believe that with better food and improved ventilation of the sleeping rooms, this could be materially decreased; to the proportion of cases of aneurysm to cardiac valvular diseases, which is as 1 to 3, an enormous excess in proportion to that found among the ordinary population, and which they attribute to syphilis as a factor in the causation as well as to the mere strain of work. Chronic rheumatism, as might have been anticipated from the constant exposure to wet and cold, and from a poor diet, figures very largely. Pneumonia, they stated, is very variable in its incidence, and is always very severe. A very large number of cases die within forty-eight hours after admission, and hence the percentage of deaths is much higher than in ordinary hospitals (37 per cent.). Chronic albuminuria is less common than would be supposed from the sailor's habits, but here the long periods of enforced sobriety must be taken into consideration. Enteric fever is still very common, and, like dysentery, is due to the water-supply being infected. In every case, on inquiry being made, it was found that the water had been taken into the ship, or that the patient had drunk water from a source of doubtful purity. The proportion of deaths from both enteric fever and dysentery is very small, especially in later years. The cases of enteric fever are all adults, and often exceptionally severe. The number of cases of abscess of the liver was only nineteen, but of these twelve were fatal. In every case there was either coexistent dysentery or a previous history of that disease. In the present year 1891, one case of chyluria, with filariæ in the blood, died in the hospital.

SECTION IX.

STATE HYGIENE.

FRIDAY.

Isolation and Notification. — Mr. J. SPOTTISWOODE CAMERON (Leeds) read a paper illustrative of the Advantage of the Isolation of Persons exposed to Infection afforded by a Limited Outbreak of Typhus Fever in Leeds during the Spring of 1890. He stated that from eleven houses twelve patients who were supposed to be suffering from typhus were taken direct to the hospital, and thirty-four, including all the other inmates of these houses, were isolated in apartments provided by the Corporation. Four of these latter developed typhus within a fortnight of their being isolated. It would have been extremely difficult to watch these thirty-four occupants of the eleven houses during the whole of the incubation period. In the sanitorium they were seen by the house physician daily, and the slightest rise in temperature noted. To this isolation was mainly attributed the rapidity with which an outbreak, one of the cases of which had been in existence a month before anything was heard of it, was so speedily checked.

Mr. PHILIP BOOBBYER (Nottingham) followed with a paper on Compulsory Notification of Infectious Diseases. He discussed the relative merits of the so-called single and dual notification, and submitted that householder notification was necessarily unsatisfactory. Both with respect to diseases dependent for their propagation upon personal contagion, and to those arising in connexion with insanitary conditions, notification simply imparted to the sanitary authorities the information necessary to enable them to exercise those powers with which the earlier Public Health Acts had already invested them. Compulsory notification, and even isolation, were the necessary outcome of evolution as applied to preventive medicine.

Mr. D. BIDDLE, M.R.C.S., next read a paper on "Should Compulsory Notification be made General?" In replying to the question he said the experiment of notification made some fifteen years ago was perfectly justifiable, being initiated upon the householder system, and, viewed *a priori*, promising well. But men of science when making experiments accepted the issue, and were henceforth guided, not by their predilections, but by the results. Notification was called a means to an end, that end being isolation. As well call detection of crime a means to an end, that end being imprisonment. Where the dual system was duly enforced people were said to crowd the hospitals; but surely the proper aim of sanitation was to lessen these crowds and to save life. What effect, then, has notification upon the death-rates? The author cited statistics relating to the twenty-eight large towns of England to show that the decline in the death-rates, general and zymotic, which was almost universal in England, received a check in towns under the dual system, and that these had a greater proportion of deaths actually from notifiable diseases than occurred in towns under no system of notification. This curious phenomenon happened for several years in succession, and was a reversal of previous relations between the same towns. If better isolation made the difference, compulsory notification was not needed. The dual system, he maintained, was dishonouring to the profession; and he concluded by declaring that, if by "compulsory notification" were meant the system embodied in the Infectious Diseases (Notification) Act of 1889, a decided negative should be returned to the question which headed his paper.

A long discussion followed. Dr. SARGENT, county medical officer, Lancashire, said his experience ten years ago, when medical officer of Bolton, was that opposition to notification did not come from the public, but invariably from medical men. Since the Act of 1889 was passed, allowing the various sanitary authorities to adopt notification, in Lancashire it had been adopted voluntarily by 75 per cent. of the sanitary authorities, representing a population of 1,250,000.—Dr. HEWITT (Minnesota, U.S.A.) said compulsory notification had been in force in that State by the vote of the Legislature for eight years. It was not so much the demand of the profession as of the people themselves, and the profession cordially followed suit. As showing the advantage of compulsory notification, Dr. Hewitt mentioned that, whereas in 1883, with a population of 600,000, there were 1200 deaths from diphtheria, the number last year was 763, in a population of 1,500,000. Dr. L. PARKES complained of the use of vague terms as to diseases in the Act, and thought erysipelas, at any rate, ought to be taken out.—Dr. SHIRLEY MURPHY maintained that there was an enormous gain in safety to the public by the existence of the Notification Act, from the fact that it was possible in consequence, within a few hours, to take precautions by stopping the distribution of infected supplies of milk or water.—Dr. WILLOUGHBY (London) said the opponents of notification persisted in identifying it with forcible removal, but that was not the case. He challenged them, however, to say "Yes" to the question, "Would

they leave alone a case of virulent scarlatina in a tailor's workroom, or of small-pox in a confined lodging?'

Dr. COVERNTON, of Montreal, said the regulations as to notification were now in Ontario and Quebec of a more stringent character. They were submitted to, and the consequence was that epidemic disease in these provinces was nearly stamped out.—Dr. CORBETT (Kingston-on-Thames) was of opinion that the putting on medical men the duty of notification had not served to lessen zymotic disease, as its advocates claimed for it. He maintained that this obligation was an infringement of the rights of the medical man, compelling him, in the lawful pursuit of his profession to become, *nolens volens*, a State informer.—Dr. VIVANT (Monaco) spoke in support of notification by the medical attendant.—Dr. BERDOE testified to the great good done to Bethnal Green by the Notification Act. The state of affairs in the parish five years ago was perfectly horrible in respect of zymotic diseases.—Dr. DRYSDALE (London) said that the views of Dr. Biddle were quite untenable. All contagious diseases could be prevented by segregation, either at home, or, still better, in hospitals for the purpose.—Dr. HARVEY LITTLEJOHN said that he had been four years in the Public Health Office of Edinburgh, where notification had been in force for ten years, and he had never heard any question raised there as to notification being dishonourable to the profession. He did not think Mr. Biddle's views had any real support in the country.—Dr. EWING, chief medical officer of New York, said there was originally opposition to notification in that city, but it had been lived down.—Dr. SPOTTISWOODE CAMERON, in replying, said that while he was an advocate of notification, he had to choose between two things—the opportunity of house-to-house examination and notification. If he could not have both, he would have house-to-house visitation.—Mr. BOOBBYER also replied.—Mr. BIDDLE, in the course of his reply, said his chief objection was to put the medical man under a penal clause to perform a duty which did not properly belong to his functions. The duty of the medical man was not to notify, but to certify. It should be the duty of the householder to notify.

Councillor Dr. LOWE (Leeds) moved, and Dr. CAMERON (Leeds) seconded: "That notification of infectious diseases in all countries should be compulsory." The resolution was carried by a large majority, only five members opposing."

Dr. MARTIN (Paris) moved: "That in the opinion of this meeting it is desirable that infectious diseases should be notified by the medical attendant."—Dr. VIVANT (Monaco) seconded the motion, which was carried by a large majority.

Dr. CURRIE (Fredericton, New Brunswick) moved, and Dr. FARRELL (Halifax, Nova Scotia) seconded, the following rider: "That in the opinion of this Section, notification of infectious disease should be compulsory on the medical attendant and the householder in whose house the disease occurs." This motion was also passed by a large majority. There was a crowded attendance during the consideration of this question.

Venereal Disease and its Prevention.—Dr. J. BIRKBECK NEVINS and Mr. J. HOLROYDE (Chatham) read papers on Venereal Diseases, and the duty of the State in regard to them.—Dr. NEVINS said that legislation could do little. It had been tried and had failed. It was most important that there should be opportunities for hospital treatment. All forms of disease should be readily admitted into hospital, whether voluntary or supported by public funds, except primary venereal. He urged the necessity for more medical aid for primaries, but the amount of venereal disease in the community at large was much exaggerated. He would make admission for all ages and both sexes easy, and entrance and discharge absolutely voluntary for the patients. Compulsion would be fatal to success.—Mr. HOLROYDE, in his paper, said there had been a marked increase of disease in the two years immediately following the repeal of the Contagious Diseases Acts, and the increase was subsequently maintained, although at a lower ratio. He spoke of the desirability of controlling prostitution, and urged the necessity of State interference in the interest of the public health.—In the discussion which followed, Dr. Routh (London), Brigade-Surgeon R. Harvey (delegate of the Government of India), Brigade-Surgeon R. Pringle, Dr. Ewing (New York), Dr. Drysdale (London), Inspector-General Lawson, Mrs. Josephine Butler, Mr. H. J. Wilson (M.P.), Mrs. Morgan-Brown, Dr. Chapman (Paris), Dr. Berdoe (London), and Mrs. Besant took part.—Dr. Nevins and Mr. Holroyde replied.

A special meeting of the Section was held in the afternoon in order to deal with some papers, which had been left over, relating to the Need for Popular Instruction in Hygiene and Physiology.

Teaching the Laws of Health in Schools.—The first paper was by Dr. A. NEWSHOLME, medical officer of health for Brighton, on the teaching of the laws of health in schools. He recommended that hygiene should be made a class subject in all elementary schools. All teachers of such schools should have passed an examination in hygiene, at least equal to that of the advanced course in hygiene of the Science Department. The proposed course of study should be carefully graduated for different standards. It should embrace the elements of chemistry and physiology, so far as they were required in order to understand the principles of hygiene, and should cover much the same ground as the elementary syllabus in hygiene of the Science and Art Department.

Women's Work in promoting the Cause of Hygiene.—This was the subject of a paper by Miss MARGARET ELEANOR SCOTT, of the National Health Society, who dealt with women's coöperation with men, and their work as wives, mothers, and mistresses of servants; with women's work outside the house; with women's work as teachers; with women as teachers in public elementary schools; and with women as members of sanitary associations and other organisations for promoting the cause of hygiene.

A paper by Dr. WILLIAM BRUCE, medical officer of health for Ross and Cromarty, on the same subject, was read by Mr. LITHIBY, one of the hon. secretaries of the Section.

Sanitary Work in India.—Surgeon-General FRANCIS furnished a paper on the work of the National Indian Association, especially in regard to sanitary matters. He expressed the opinion that no real hygienic progress would take place in India until the women of India could be educated in the rudiments of health. Unfortunately, the religion and prejudices of the natives often came into collision with elementary hygienic principles.

Popular Instruction in Preventive Dentistry.—This was the subject of a paper by Mr. GEORGE CUNNINGHAM, lecturer on Dental Surgery at the University of Cambridge. The reading of the paper was illustrated by a number of beautiful and interesting lantern slides.

On the motion of Mr. LITHIBY, seconded by Dr. BARRY, the following resolution was cordially agreed to: "That the cordial thanks of the Section be conveyed to Señor Villanova y Piera (Madrid) and to M. Guillaume (Berne) for the valuable works which they have presented to the Congress."

Some discussion took place on the papers read, and at its close a vote of thanks was passed to the Chairman, and the Section rose.

DIVISION II.—DEMOGRAPHY.

FRIDAY.

Anthropometry.—On Friday morning Anthropometry was represented in full force in this Division. Col. WOODHULL, on behalf of Col. C. R. Greenleaf and Major Smart, officers of the United States Army, contended that the Bertillon anthropometric method did not satisfy courts-martial when seeking to recognise deserters, but by noting indelible scars identity could be established. The system of registering under the headings of "light-eyed and dark-eyed men" was explained, together with outline cards, giving the anterior and posterior surfaces.—Dr. WILBERFORCE SMITH objected that there was an artificial variability in the height of men. It was possible for a man to increase his height during measurement, and he showed a portable measure by which the height was indicated by an electric bell which sounded as soon as the measure was on a line with the head.—Mr. FRANCIS GALTON now demonstrated his method of identification by means of finger points. The minutest details of the ridges or lines of the bulb of the fingers are maintained throughout life. The pattern may grow in size but they preserve their general characteristics. There are, on an average, on each finger, at least twenty distinct points of reference, and Mr. Francis Galton demonstrated practically before the Congress the facility of recognition.—Dr. BERTILLON explained the well-known method invented by his brother, M. Alphonse Bertillon. He pointed out that

the difficulty was not identification but classification. A person might be identified by his photograph, but there were 200,000 photographs at the Paris Prefecture of Police. It was not possible to look through all these on each occasion. Dentists had insisted that teeth always differed, and that a cast of the mouth would be a perfect method of identification. But these casts could not be classified any more readily than the photographs. By measurements, however, we had in the figure representing the size a classification already indicated. He would put the longest bone first, the shortest last, and the medium in the middle. Men divided according to their height are subdivided according to their width, then according to the length of the foot, till the last subdivision brings some 100,000 cases down to a small handful of cards, perhaps not more than a dozen or so photographs, and their identification is easy. In answer to a question from Mr. Francis Galton, Dr. Bertillon acknowledged that by far the greatest number of cases were of the medium size, but in recording the measurements the figures were so divided that each of the three categories should contain the same amount of cases.—Dr GUILLAUME (Berne) urged that the system should be international, with a large international bureau, to which reference could be made from all parts of the world. He thought that not only criminals but everyone should be measured by the Bertillon system, and we should then in all countries and under all circumstances be able to establish identity.

By this time a number of persons entered the Division, more than had ever been there before. Among these new arrivals there was a large proportion of ladies.

The *Physical Conditions of Children in Schools* now came under discussion, and this question had attracted the new arrivals. Dr. FRANCIS WARNER read the paper, which we have already noticed, and moved a resolution to the effect that the investigations now made indicate new and grave problems, and therefore more inquiry is required.

The paper presented by Mr. J. S. Turner on behalf of the British Dental Association was read by Dr. N. B. PATERSON. Figures were given as to the examination of a very large number of teeth among school children. The result proved that the boys lost more teeth than the girls, that the number of teeth lost was so extensive as to assume the proportions of a national calamity, for the digestion being impaired, the physical stamina of the nation was injured. All schools should engage the services of a properly qualified dentist, and a needless loss of teeth could thus be easily prevented.

Miss HILL read, on behalf of Miss Fanny Fowke, a paper in favour of the boarding-out of pauper children, giving statistics to show that the children who remained in workhouses were not so healthy.

Discussion being invited on these various papers, Dr. WILBERFORCE SMITH advocated further application of what he qualified as medical arithmetic. The eye, as a means of estimation, was not reliable. To an experienced physician the trembling of the hand when stretched out might indicate the nerve weakness of a child, but experience and judgment were so unequal that it was safer to count by weights and measures. If the weight of a child did not constantly increase, we might be certain that something had gone wrong. Personally he knew a child who came up to London from the Devonshire moors, with this result, that six days of excitement and sight-seeing in London sufficed to produce a loss in weight of one pound and four-tenths of a pound. The evils arising from insufficient mastication caused by the loss of teeth, which should always be counted by pairs, could not be exaggerated. He urged the importance of immediately stopping the "pinholes."—Dr. CUNNINGHAM was delighted to find that now doctors and dentists were agreed, and therefore hoped that henceforth dentistry would be included as forming part of hygiene. Statistics that he had collected showed that 56 per cent. of the upper molars were decayed before the eighth year. The lower molar came first and decayed at once, 20 per cent. being decayed during the first year and 70 per cent. by the third year. The cause was not due to fermentable matter in the mouth, otherwise the central incisors and other teeth would be equally attacked. The cause was intrinsic; the molars came with defects in shape and were injured by the decay of the first teeth. The mouth was practically an incubator for the development of bacteria, and we wanted better teaching of the prophylaxis of the teeth. In some schools they gave good marks to children who kept their teeth clean, and one dentist, for the modest salary of £20 per annum, when the figures were compared with the average prevalence of decay, was found to have saved 80 per cent. of the pupils' teeth.—Professor BEACH and Dr. RICHARDS having spoken a few words, Mr. ERNEST HART dwelt on the value of Dr. Warner's paper, and the vast importance of precise physical investigation among school children. The separation of the feeble-minded and backward children from those who possessed the average ability was also a pressing necessity. The one hindered the other. The defects of development were, if anything, more prevalent among the upper than the lower classes. By insisting on the physical examination of children we were engaged in constructive work full of promise for the physical improvement of the population, and this movement deserved the strongest support of the Congress.—Dr. KNOCK, replying to Miss Fanny Fowke's paper, said that the failures mentioned with respect to pauper children in pauper schools was due to the glaring bad management of some of these institutions; but no such failures occurred, where, as at Portsmouth, the schools were well administered.—After a few words in reply from the readers of the papers, and just as the discussion was considered to have been closed, Dr. GUILLAUME rose to express his gratification at the presence of so many ladies as members of the Congress. He had always felt that without the coöperation of ladies it would be impossible to realise in practice the desired sanitary reforms.

Mr. FRANCIS GALTON, as chairman, now declared the discussions terminated, and that the Congress had only to vote on the resolutions which had been brought forward. The first was a resolution, countersigned by a large number of members, to the effect that the Division considers it inexpedient, and declines, to vote on questions which were not included in the papers read. This was carried by 30 votes against 2, and the chairman declared that its first effect would be to put M. Vaillant's resolution aside. This resolution expressed an approval of the agitation in favour of the eight hours' day, and this question had not been discussed in any of the papers submitted to the Congress. M. VAILLANT protested, and urged that at least the first half of his resolution, which simply declared that the duration and intensity of the day's work should be reduced as much as possible, might be put. But the Chairman would not listen to this proposed compromise, and proceeded to put the next resolution, which was worded as follows:—"I have the honour of requesting the Congress to inscribe on the agenda of the next Congress the following subject for discussion: 'The Duration of the Day's Work in relation to the Health of the Worker, and its consequences on Public Health.'" This resolution was proposed by Dr. PAUL BROUSSE, member of the Paris Municipal Council, and seconded by Mr. ADOLPHE SMITH. It was carried by 18 votes against 2, a great many persons having by that time left the Section. Also several of the persons present had not assisted at the debate on this question, and, not understanding the points at issue, abstained from voting.

The next resolution was proposed by Mr. ERNEST HART, seconded by Mr. GRAHAM BALFOUR, and worded as follows: "That an investigation which has been made over the condition of bodily development and brain action in some 50,000 children, indicates new and grave problems respecting the provision necessary for the care and training of those who are more or less defective in make, and also respecting the causation in certain districts of mal-developments, which are much associated with defects of the brain, and that an extended scientific inquiry is desirable for the further elucidation of the subject." This resolution was carried unanimously.

A lengthy resolution was then proposed by Dr. GEORGE VON MAYR (Munich), demanding that "in countries where, as in Germany and Austria, the insurance of workers was rendered compulsory by law, ampler details should be ascertained from each worker. He ought to give full details as to his occupation and his previous occupation, the amount of wages earned, and the proportion of slack time. The same data should be obtained in cases of accidents as in cases of sickness. The nature, gravity, consequences of the wound, together with full particulars as to the surroundings of the workshop or factory, &c., where the accident occurred, should also be obtained. For this work a labour bureau should be created in every centre, and both employers and employed should be consulted as to the accuracy of the information collected. Finally, the same data ought to be

obtained with the assistance of the Government and police authorities in countries where the insurance of the working classes is not compulsory." This resolution was adopted by 17 votes, six members declaring that they declined to vote because they did not fully understand the subject.

The work of the Division of Demography was now accomplished; there were no more resolutions; and, without any vote of thanks or any other sort of ceremony, the members and delegates retired. Coldness and rigidity, and a total absence of enthusiasm, marked this melancholy closing scene. Perhaps the members felt that a number of very able and learned persons had been brought together from different parts of the world for little or no purpose. What, after all, has the Division done and decided? It has actually had the boldness to declare that the duration of the day's work in relation to the health of the worker is a subject that should be discussed—next time. The Division has bravely thrown on to some other country and some other congress the responsibility of organising a discussion on this most practical question. Our continental friends, who do not enjoy the freedom of discussion we have long possessed in England, will have in this a good opportunity of admiring the courage of English demographers. The second resolution declares that further scientific inquiry with regard to the physical and mental condition of children is desirable. Really was it worth while for a number of taxpayers throughout the Continent to subsidise delegates and send them all the way to London for the purpose of saying that more information would be useful? Nor does Dr. von Mayr's resolution amount to much more than this; it is also a demand for more elaborate and widespread information. Had the demographers, then, no proposal to make, no suggestion to throw out; could they indicate no constructive policy? Was this the fault of the demographers themselves, or of the manner in which the Congress was organised? Had there not been from the very first a distinct effort made to discourage practical proposals, virile resolutions? Had not the international character of the meetings been in a great measure destroyed by the refusal to organise systematic translations? By these manœuvres the number of attendants was reduced to a minimum. Those who would have taken an active part in the debates, finding it impossible to follow the discussions for want of translations, disappeared one by one; and the Division, reduced to a state of anæmia through the loss of its best blood, died of inanition.

THE CLOSING MEETING.

In taking the chair at the closing meeting, Sir DOUGLAS GALTON said: "I desire, in the first place, to congratulate the Congress on the success of the present meeting. The number of members exceeds those who have taken part in any previous meeting. Many of the papers possess a very high value, and will have a permanent influence on the branches of hygiene and demography to which they severally refer. The number of foreign delegates and of foreign members is highly flattering to us as a nation. Our success has been due, first, to the gracious patronage of the Queen, and to the strong personal interest which has been taken in the Congress by our President, the Prince of Wales, who not only opened the Congress in an admirable speech (which you all heard), but who arranged that a delegate from the Government of every foreign country represented at the Congress should have the honour of being introduced by himself personally to the Queen. The success of the Congress, as an international gathering, is also due to the fact that we, as a nation, have many matters of interest to show to foreigners. I think I may say that the chief difference between our hygienic progress and that of our continental neighbours is that, whilst they are especially fortunate in being able to pursue the theories upon which much of modern hygienic progress is based, with us public opinion has hindered the study of many physiological questions, the solution of which depends upon the examination of living tissue. Hence, we at present are in this respect somewhat behind the continental schools, and we largely turn our attention to apply their theories to alleviate the wants of life. The native princes of India evinced deep sympathy with the Congress, and I trust that the interest which has been evoked in its object may lead to beneficial results in that great country. A principal object of the Congress is, without doubt, to afford to scientific men in different countries the opportunity of conferring together. But it has another and most important object—viz., to excite the interest of the community at large in the knowledge of the laws of health. Your President the other day asked the pertinent question—Why, if diseases are preventable, are they not prevented? The answer to that question is that, whilst an instructed minority may understand the importance of observing hygienic laws, a very large section of the community is indifferent to their observance. A great International Congress like this brings the subject prominently before the public, and has a valuable influence on the country in which it is held. We have endeavoured to make the Congress useful and agreeable to those who have honoured us with their presence. The success which we have had is mainly due to our secretary-general (Dr. Poore), our foreign secretary (Dr. Corfield), and, as far as India is concerned, to the energy of Mr. Digby. The excellence of the social arrangements is entirely due to the organising power and tact of the secretary of the Reception Committee, Mr. Malcolm Morris. But you will have an opportunity of thanking the executive before the end of this meeting." This address was afterwards repeated in French by Mr. Adolphe Smith, who also interpreted the resolutions read by the Secretary.

The various resolutions passed by the different Section having been read by Dr. G. V. POORE, it was announced by Dr. W. H. CORFIELD that the Permanent Committee had decided to accept the invitation from the authorities of Buda-Pesth officially offered to them by Mr. Joseph Körösi for the year 1894.—The CHAIRMAN moved, and Dr. OGLE (London) seconded, a resolution, stating: "That this Congress accepts with cordial satisfaction the invitation of the authorities of Buda-Pesth to hold the next meeting of the Congress in that city in 1894; that the Permanent Committee of Hygiene and Demography be re-elected, with the addition of Professor Fodor and Professor van Overbeck de Meyer for hygiene, and Dr. E. Janssens and Mr. Joseph Körösi for demography, with power to add to their number." The resolution was carried.

Mr. J. KÖRÖSI thanked the Congress for the great honour they had done Buda-Pesth in resolving to have their next meeting in that city. The two oldest pillars of freedom in Europe were those of Hungary and of England. Hungary had defended for centuries, with its blood, the peace and creed of Europe. Let the members of the Congress come and see how Hungarians defended the position which Providence and historical development had assigned to them. The Congress would, perhaps, find some work done, and would be received with cordial affection not only by the 500,000 inhabitants of Buda-Pesth, but also by the nation.

Dr. POORE announced that Mr. J. Körösi had set aside the sum of 1500 francs to be offered as a prize for the best work on the subject of Demography and its Progress in the Chief Countries of Europe and in the United States of America.

Professor SELLS (Germany) moved, and Professor KUSY (Austria) seconded, a vote of thanks to Her Majesty the Queen for becoming patron of the Congress.

Lieutenant-Colonel Dr. WOODHULL, of the Medical Staff of the United States Army, in supporting the motion, said he felt greatly honoured and equally embarrassed at the privilege of speaking to such a resolution. He could not pretend to formally represent all English-speaking strangers, but he knew that all of these felt very nearly as he did. Whether the work done in the past week was not work, and whether the Congress had created a fool's paradise in science, he would not pretend to say. For himself he felt like a half-bushel measure into which it had been attempted to put a bushel. It was a matter of regret to the American delegates that none of them had been authorised to formally and officially invite the next Congress to America. He sincerely hoped, however, that the day was not far distant when America's turn might come in receiving the Congress, not in the magnificent way that the treasure-house of the world had been enabled to show, but with as genuine and hearty, if not as grand, a welcome for all. "The gracious lady," he said, "whose purity and dignity of life you rejoice in has, by those same qualities, extended her empire of love and respect over our citizens, and her personal welcome most auspiciously crowned the hospitality with which everywhere and by everyone we have been received."

His Excellency M. GENNADIUS, the Minister of Greece, moved a vote of thanks to the Prince of Wales, which was seconded by M. BELMAS (Spain), and supported by Dr. LOUIS DE CZATARY (Hungary), and adopted.

Sir OWEN BURNE (London) moved: "That the best

thanks of the Congress be tendered to the Secretary of State for India and the Viceroy of India for the interest which they have manifested in the Congress, and to their Highnesses the Gaekwar of Baroda, G.C.S.I., the Maharajah of Bhaonagar, G.C.S.I., the Nizam of Hyderabad, G.C.S.I., the Maharajah of Jeypore, G.C.S.I., the Maharajah of Vizianagram, K.C.I.E., and the Maharajah of Cooch Behar, G.C.I.E." This was seconded by Surgeon-General CORNISH, and carried.

A vote of thanks to the foreign Governments, especially to the Danish Government for its generous contribution to the literature of hygiene and demography, was moved by Dr. G. BUCHANAN (London), and seconded by Lieutenant L SAMBON (Naples), who represented the Italian Government. He remarked that no former Congress had been so successful in bringing before the public the principles of hygiene, and he could not but express his admiration for the splendid way in which the Press had succeeded in popularising this important branch of medicine.—Dr. LEHMANN (Denmark), in returning thanks, referred to the many ties existing between England and Denmark. England, he said, had transferred the most beautiful rose of Denmark into English soil. He hoped Great Britain would always be the brightest star in the firmament of Hygiene, to which all nations would look.—Miss ROSE LYON, on behalf of the International Union of Science and Arts, also spoke.

Votes of thanks were likewise accorded to the officers of the Congress, to which Dr. POORE, Dr. CORFIELD, and Mr. MALCOLM MORRIS responded. A vote of thanks to the Chairman (Sir Douglas Galton) was proposed by Sir R. RAWLINSON (Vice-President), and seconded by Professor SELLS (Germany). The CHAIRMAN, in responding, said that it had been a matter of great interest to him to assist in organising this Congress, and concluded by thanking the Press for the admirable manner in which they had reported the proceedings of the Congress, because, without the publicity which their reports had afforded, the proceedings of the Congress would not have been widely known as they now were, and would not have spread the information which the members of the Congress had been so assiduous in collecting.

The proceedings then terminated, and the Congress of 1891 was brought to a conclusion.

We understand that the Permanent International Committee has appointed the following International Subcommittee to prepare a scheme for the organisation of future Congresses. The subcommittee consists of: Professor Dr. Brouardel, Hon. LL.D.Cantab. (France), Professor Dr. Fodor, Hon. LL.D. Cantab. (Hungary), and Professor Corfield (England) to represent Hygiene; and M. Körösi (Hungary) and Dr. Janssens (Belgium) to represent Demography.

The subcommittee, it is thought, will consider the advisability of forming permanent committees in various countries, the plan of having committees outside the country in which the Congress is held having proved so successful in obtaining foreign members for the London Congress, at which it was adopted for the first time.

THE INDIAN MEETING.

The meeting on "Sanitary Progress in India" was resumed in the theatre, Sir M. GRANT DUFF in the chair. The subject was further discussed, and the following resolution was come to:—"That, looking to the interest shown by India in this Congress, and considering the probability that other tropical countries will take a similar interest in future Congresses if a more prominent position were given to the consideration of subjects in which they are interested, this meeting recommends to the Permanent Committee that, in future Congresses, a Tropical Section be formed, with a view to a fuller discussion of questions affecting sanitation and the origin of diseases in tropical climates."

THE LADIES' COMMITTEE.

Before the Congress of Hygiene is forgotten it is but right that we should comment on one branch of its administration which has met with unqualified approval. We refer to the Ladies' Committee, who have laboured very successfully to make the visit of foreign ladies to London as agreeable as possible. Under the leadership of Mrs. Priestley, arrangements of a very thorough character were made for showing lady visitors all that was worth seeing in London. Messrs. Agnew having kindly lent their gallery in Bond-street for the purpose, a resting-place and tea-room were provided to which ladies could resort at all hours of the day. Here they sat and waited, or, accompanied by the members of the committee or by lady guides provided by the committee, were taken to the different exhibitions and galleries, or to the houses which were thrown open for their entertainment. This is the first time these special arrangements for ladies have been made in connexion with the Hygienic Congresses, and they certainly contributed in no small degree to the success of that which has just terminated. We do not doubt that the example thus set will be followed in all future Congresses. Everyone interested in the work owes a debt of gratitude to Mrs. Priestley, Miss Lankester, and the ladies who assisted them.

THE LADIES' SANITARY ASSOCIATION presented a report to the Congress, setting forth the history of the Association from its foundation in 1857, and detailing the work it has been enabled to accomplish up to the present time. This work has consisted in the publication of tracts and cards giving simple instructions on health matters, the organising of destitute children's dinners, the opening of a college for technical training in hygiene, the delivery of lectures on sick nursing, &c. One feature of the Association ought to commend it to the favour of the benevolent—one, indeed, that should be kept in view of all who are desirous of permanently benefiting the humbler classes of society—viz., that its labours are directed to the great object of teaching the poor to help themselves.

SOCIAL GATHERINGS.

(*Continued.*)

VISIT TO THE CRYSTAL PALACE.

On Thursday not far short of a thousand delegates proceeded by a special train, which was admirably appointed, and consisted principally of saloon carriages, to the Crystal Palace. Here a dinner, or rather a cold collation, awaited them. Waiters there were, but they were able to do little in the way of serving, and soon the members of the Congress were reduced to the rough expedient of obtaining what food they could reach. This led to strange mixtures, such as sweet, lemon-flavoured, calves'-foot jelly with salt-pressed beef or ham, as several foreign delegates mistook this jelly for cold meat gravy. After the scramble for food, there was a rush to see the fireworks. These were certainly most magnificent, though unquestionably *mal apropos*. Instead of some allusion to the Congress of Hygiene, we had a set piece representing the Battle of the Nile. There were ships bearing the French tricolour flag which were capsized, blown up, and generally annihilated by other ships triumphantly sporting the British Union Jack. This was scarcely complimentary to the French delegates present, whose minds were, perhaps, preoccupied by the forthcoming visit of the French fleet to Portsmouth. The character of the fireworks might have been made to harmonise better with the spirit of international fraternisation which the Congress has so successfully helped to develop.

CONVERSAZIONE AT THE SOUTH KENSINGTON MUSEUM.

The holding last Friday evening of a reception at the South Kensington Museum was certainly a happy idea. It enabled many foreign delegates to obtain a glance at our most renowned museum, and also the *locale* formed a splendid framework into which the picture of the Congress was gracefully grouped. The elegant dresses, the uniforms, the stars and decorations, were seen to great advantage, flitting about amid the art treasures of the museum. Music softly floated through the long galleries, friends met and talked, cordiality prevailed throughout, and the Congress had every reason to thank the organising committee for this friendly and agreeable evening's entertainment.

VISIT TO CAMBRIDGE.

On Saturday sixty foreign members of the Congress visited the University of Cambridge by invitation. They arrived by train at 12.30 P.M., and were received in the Senate by the Vice-Chancellor and most of the resident members of the University, and many other gentlemen and ladies, the doctors wearing their scarlet robes and others their appropriate costumes. The Vice-Chancellor welcomed them to

the University of Bacon, Newton, Darwin, and Clerk-Maxwell in an eloquent and interesting address. The honorary degree of LL.D., the highest honour the University gives, and which had been agreed to by the Council of the Senate and the Senate itself, was conferred upon Dr. Brouardel (the President of the Permanent International Committee of Hygiene at Paris), Dr. Corradi (Professor in the University of Pavia), and Dr. Fodor (Professor in the University of Buda-Pesth). Each was introduced by Dr. Sandys, the public orator, with an appropriate Latin address, and was received with acclamation by the assembly. The same honour had been decreed to Baron von Esmarch of Kiel and Prof. Carl Theodor von Inama Sternegg of Vienna; but these two distinguished men were at the last unable to attend. The party then adjourned to King's College, in the fine hall of which an excellent luncheon was provided. The toast of the visitors was proposed by Sir George Paget, and replied to in a humorous and eloquent speech by Dr. Brouardel. They were then escorted in parties to the more interesting and important buildings, museums, and laboratories; and having been entertained by the Vice-Chancellor at a garden party at the ancient and palatial Lodge of Trinity College, the greater number left by train for London the same evening.

The following is the text of each of the addresses above referred to:—

DIGNISSIME domine, domine Procancellarie, et tota Academia:—

Nescio quo potissimum exordio hospites nostros, qui de salute publica nuper deliberaverunt, senatus nomine salutare debeam. Ad ipsos conversus, illud unum dixerim:—qui aliorum saluti tam præclare consuluistis, vosmetipsos omnes iubemus salvere. Ea vero studia, quæ vobis cordi sunt, gloriamur in Britannia certe Academiam nostram primam omnium adiuvisse. In salutis publicæ ministris nominandis valent plurimum diplomata nostra, valent etiam aliarum Academiarum, quæ, exemplo nostro incitatæ, laudis cursum eundem sunt ingressæ. Hodie vero collegarum vestrorum nonnullos, qui gentium exterarum inter lumina numerantur, diplomate nostro honorifico decorare volumus. Nemini autem mirum sit, quod viros medicinæ in scientia illustres iuris potissimum doctores hodie nominamus. Etenim Tullium ipsum in libris quos de Legibus composuit, scripsisse recordamini populi salutem supremam esse legem.

1. Primum omnium vobis præsento gentis vicinæ, gentis nobiscum libertatis bene temperatæ amore coniunctæ civem egregium, Parisiorum in Academia medicinæ forensis professorem præclarum, facultatis medicæ decanum dignissimum, salutis denique publicæ annalium editorem indefessum. Olim Cæsar omnes medicinam Romæ professos civitate donavit; nos non omnes certe, sed, habito delectu aliquo, unum e reipublicæ Gallicæ medicis illustrissimis, qui admirabilem in modum medicinæ et iuris studia consociavit, corona nostra ob cives etiam in pace servatos libenter coronamus.

Duco ad vos PAULUM CAMILLUM HIPPOLYTUM BROUARDEL.

2. Quo maiore dolore Austriæ et Germaniæ legatos illustres absentes desideramus, eo maiore gaudio Italiæ legatum insignem præsentem salutamus. Salutamus Academiæ Bononiensis, nobiscum vetere hospitii iure coniunctæ, alumnum, tribus deinceps in Academiis, primum Mutinæ, deinde Panormi, denique Ticini in ripa professorem, qui medicinæ scientiam cum rerum antiquitus gestarum studiis feliciter consociavit, quique in Italiæ scriptoribus eximiis, non modo in Boccaccio sed etiam in Torquato Tasso, artis suæ argumenta non indigna invenit. Quondam imperator quidam Romanus Roma in ipsa augurium salutis per annos complures omissum repeti ac deinde continuari iussit. Quod autem salutis publicæ concilio Londinensi etiam Italia interfuit, velut augurii felicis omen accipimus. Recordamur denique poetam antiquum urbis æternæ de nomine his fere verbis non inepte esse gloriatum:—

> Roma ante Romulum fuit;
> non ille nomen indidit,
> sed diva flava et candida,
> Roma, Æsculapi filia.

Duco ad vos Æsculapi ministrum fidelissimum, ALPHONSUM CORRADI.

3. Quis nescit urbem florentissimam quod Hungariæ caput est, nomine bilingui nuncupatam, fluminis Danubii in utraque ripa esse positam. Quis non inde nobis feliciter advectum esse gaudet salutis publicæ professorem insignem, virum titulis plurimis cumulatum, qui etiam de Angliæ salubritate opus egregium conscripsit. Idem, velut alter Hippocrates, de aëre, aquis et locis præclare disseruit. Olim Hippocrates ipse corona aurea Atheniensium in theatro donatus est: nos Hippocratis æmulum illustrem laurea nostra qualicunque in hoc templo honoris libenter ornamus.

Duco ad vos bacteriologiæ cultorem acerrimum, IOSEPHUM DE FODOR.

TRIPS ON THE RIVER THAMES.

In connexion with the International Congress of Hygiene and Demography a river excursion—a pleasant change from the labours of the week—took place on Sunday on the Thames. The party, which included a few ladies, left Paddington in the morning, and, after breakfasting at Spindle's Hotel, Taplow, proceeded in an electric launch as far as Henley, returning in the evening. Dr. Buchanan, the chief medical officer of the Local Government Board, was the host. Amongst those present were Dr. W. J. de Mayer (Utrecht), Dr. Ibrahim Pasha (Cairo), Dr. Mariano Belmar (Madrid), Dr. H. Kubon (Liège), Dr. Modesto Martinez Pacheco (Madrid), Dr. Carlos Bastida (Madrid), Dr. Longuet (Paris), Dr. Charles Siebreich (Hungary), Dr. von Knapp (Stuttgart), Dr. Pfeiffer (Darmstadt), Dr. J. Körösi, Dr. E. Kövési (Buda Pesth), Dr. Polak (Warsaw), Dr. Kawalski (Vienna), Dr. Simpson (Calcutta), Dr. von Koch (Stuttgart), Dr. Gunther (Dresden), Dr. Pistor (Berlin), Dr. H. Ghysen (Liège), Dr. P. Garcia Faria Juginer (Barcelona), Mr. M. M. Bhownaggree, C.I.E. (Bombay), and Dr. Bentzin (Christiania).

Mr. Shirley Murphy also on Sunday took a number of the foreign visitors in an electric launch from Henley to Maidenhead.

VISIT TO DARTFORD CHEMICAL WORKS.

On Saturday, a party of members accepted an invitation to visit the chemical and pharmaceutical works of Messrs. Burroughs, Wellcome, and Co. at Dartford. On their arrival, the visitors, who had been accompanied from town by Messrs. Burroughs and Wellcome, were received by the manager (Mr. Searle) and the assistant manager (Mr. Williams), and taken in detail over the various departments. Not the least interesting sight was the boiling of the malt in vacuo at as low a temperature as 100°. This low temperature, as is well known, is essential to the preservation of the diastase of malt, which is destroyed by heat rising above 150°. The visitors were then taken through the various processes of the manufacture of tabloids, and the demonstration was complete of the efficacy of the methods employed to ensure purity and the subdivision of the most potent drug, so that each tabloid shall contain its exact proportion of any pharmaceutical preparation. The visitors returned to town in the afternoon, after a pleasant and instructive trip.

THE VISIT TO NETLEY.

Among the many excursions in which the foreign delegates participated, that to Netley Hospital, upon the invitation of Surgeon-General Madden and the officers of the Army Medical Staff, on Saturday, was one of the most interesting and enjoyable. A party, numbering about forty, and including Dr. W. Roth, Surgeon-General of the Saxon Army; Dr. Grossheim, Chief of the Medical Department of the Prussian Army; Dr. Scheibe, Staff Surgeon in the Prussian War Office; Dr. Lübbert, Dr. Paak, and Dr. Burdach, of the War Department, Saxony; Dr. Schneider, of the War Department, Paris; Dr. Kirchner, Staff Surgeon, Hanover; Dr. Gustav Buckling, Stuttgart; Dr. L. W. Sambon, Lieutenant-Surgeon in the Italian Medical Staff, Naples; Dr. H. Laub, Medical Officer of the King's Guards, Copenhagen; Dr. Schumburg, Staff Officer of the Saxon Army, Wesel; and Dr. Karg of Leipsic, left Waterloo Station by special train at nine o'clock in charge of Professor Notter. The weather was delightful during the journey, and indeed throughout the day, and the country *en route* looked its best. On arrival at Netley the party were conducted to the hospital, where they were received by Surgeon-General Madden, and afterwards conducted on a tour of inspection of the various departments of the institution, the several members of the Army Medical Staff being most untiring in their efforts to place their distinguished visitors in possession of a proper appreciation of the resources and purposes of the hospital. The kitchen, where the dinners were in preparation, the wards, the pack stores, and the medical stores were all visited and viewed with the greatest interest. The interesting and extensive museum naturally came in for a good share of attention. The party afterwards sat down to luncheon at the hospital mess, Surgeon-General Madden presiding. The menu was excellent, and was magnificently served. Deahl's band, from Southampton Theatre, played during luncheon, and later on in the grounds. After luncheon, the party was conducted to the beautiful park in front of the hospital, where an illustration of field hospital and ambulance operations under fire was given, showing very vividly the highly useful, but also very dangerous character of the work. The moral support which the presence of a medical officer must afford in action, and the certainty of prompt medical aid in the case of being wounded, should never be forgotten, because, with our modern ideas the soldier expects to be taken care of if he is sick or wounded, and troops tend to become demoralised and dispirited in action if they do not feel that every precaution is taken for their safety in such event. The display made on Saturday would convince anyone that, providing this department were sufficiently manned and officered, troops might feel perfectly reassured under almost any circumstances. Subsequently tea was served, and after a brief lounge in the mess smoking-room the party

proceeded to the railway-station and commenced the return journey at a quarter past six, reaching London about ten o'clock, highly delighted with their excursion and deeply impressed with the hospitality and courtesy of Surgeon-General Madden and the officers of the Army Medical Staff at Netley Hospital. These officers who, together with Surgeon-General Madden, exerted themselves so much to make the visit enjoyable and instructive, are Deputy Surgeon-General Cayley, Sir Thomas Longmore, Brigade Surgeon Godwin, Surgeon-Major Notter, Surgeon-Major Tomsett, Surgeon-Major Edge, Surgeon-Major Stevenson, Surgeon-Major Routh, Surgeon Davies, Surgeon Pope, Surgeon Bean, Surgeon Addison, Quarter-Master Kyle, Quarter-Master Johnson, and Quarter-Master Macintyre.

GARDEN PARTIES AT HAMPSTEAD AND NORMANSFIELD.

On Friday afternoon the members of the Congress were entertained at a garden party by Sir Spencer Wells in his beautiful grounds at Golder's Hill, Hampstead. There was a very large gathering, who much enjoyed the pure air and unbroken view of the Harrow Weald, with its typically English woodland scenery. The band of the Coldstream Guards enlivened the proceedings, whilst from time to time there were given some fine performances on the organ.

Dr. and Mrs. Langdon Down entertained the members of the Congress at a garden party at Normansfield on Saturday, August 15th, when a very large number accepted the hospitality.

BANQUET GIVEN BY THE VETERINARY SURGEONS.

The President and Council of the Royal College of Veterinary Surgeons gave a banquet at the Hôtel Métropole on Friday evening, Aug. 14th, to the foreign veterinary surgeons and others attending Section III. of the Congress of Hygiene and Demography. The President, J. D. Lambert, Esq., C.B., F.V.S., occupied the chair. The following guests were present:—Dr. Chauveau (Paris), Professor and Dr. Arloing (Lyons), Professor Railliet (Alfort), Professor and Dr. Bang (Copenhagen), Professor Perroncito (Turin), Dr. Ostertag (Berlin), Professor Nocard (Alfort), Professor Ménard (Paris), Professor and Dr. Raphael-Blanchard (Paris), Dr. Sergius Ivanor (Russia), Dr. Sims Woodhead, Dr. Pearson, Dr. Hime, T. J. Reeves, Esq. Ernest Clarke (secretary Royal Agricultural Society) and many members of the Royal College of Veterinary Surgeons also attended.

VISIT TO BECKTON GAS WORKS.

A number of members were invited by Sir Donald Currie to luncheon on board the *Drummond Castle* on Friday, Aug. 14th, which was reached by a special steamer which started from Westminster Pier and conveyed the guests to the steamer. After luncheon the party left by train to visit Beckton Gas Works and the Drainage Outfalls.

SANITATION IN INDIA.

THE Reports of the Sanitary Commissioner with the Government of India are, as a rule, both able and interesting public documents, and that for 1889 forms no exception to the rule. It was, we believe, the late Dr. Bryden, who had a sort of genius for devising statistical tables and casting them into the best form, who first of all designed and published tables similar to those at present in use. Be that as it may, there cannot be a doubt about the value of the information in these reports to the statesman, the statistician, the epidemiologist and medical inquirer generally. To a man who has wandered about amid these tables and knows the country, so to say, there is scarcely a subject connected with the prevalence and pathology of Indian diseases about which he cannot get some foothold of fact and find some sure pathway to useful knowledge. The reports are a mine of information of various kinds, and worthy of more attention and study than they usually obtain—out of India, at any rate. That for 1889 gives us, unfortunately, little ground for thinking that effective sanitary work is progressing in India; on the contrary, the health of the European troops seems to have been steadily getting worse of late years. The report is more unfavourable than its predecessors. The daily sick-rate, which affords a pretty good index to the amount of inefficiency, has increased, and this is accompanied by a rise in the death- and invaliding-rates; and these results are not limited to one, but affect the European troops in all the three Presidencies. The increase in the daily sick-rate is no doubt mainly attributable to a remarkable increase in venereal diseases to which we have before called attention, and Sir William Moore would account for it by the abolition of lock hospitals. The army in India is composed, under the short service system, of younger men, and has a much smaller proportion of married men than formerly. There were no less than 423 fatal cases of enteric fever among the troops in India in 1889.

In 1883 the total deaths were 10·88, and the invaliding 33 per 1000. From that time to the present the daily sick and death-rates have been going up. In 1888 the mortality rate was 14·84, and the invaliding rate 23, per 1000, as against 16·60 and 26 per 1000 for deaths and invaliding respectively in 1889. The death-rate from enteric fever has risen in all the three Presidencies; and it caused 37 per cent. of the total mortality in 1889, as against 25 per cent. in the preceding year.

The following table shows the percentage respectively of enteric fever, hepatitis, dysentery, and pneumonia in the total deaths of each Presidency in 1889:

—	Bengal.	Madras.	Bombay.
Enteric fever	41·6	22·3	40·2
Hepatitis	7·9	11·3	7·4
Dysentery	3·9	7·0	5·3
Pneumonia	3·1	1·5	3·7

It is astonishing how widely spread typhoid fever is in India. There appear to be hardly any military stations free from that disease. The report repeats the old story of the great liability of young soldiers to this fever during their first two years of Indian service—a matter about which there can be no doubt whatever.

The following table is interesting in comparing and contrasting the admission and death-rates per 1000 from enteric fever in the European troops, native troops, and gaol population of India:—

—	1877 to 1886.		1889.	
	Admissions.	Deaths.	Admissions.	Deaths.
European troops ..	8·9	3·15	22·9	0·11
Native troops	0·2	0·10	0·2	0·07
Gaol population ..	0·2	0·10	0·4	0·16

One of the main points in this report is that calling attention (at pages 26, 27) to the important advance made in the investigation of the pathology of enteric fever by the discovery of the Eberth-Gaffky bacillus in specimens of spleen and mesenteric glands forwarded from India to Prof. Bernhard Fischer of Kiel, to which we have already directed attention. For diagnostic purposes this observation is valuable in that it establishes the identity of the fever with that prevailing in Europe, and thereby indicates that the source of this disease must be sought for in the contamination of ingesta, and that climate must be considered but a secondary influence. Inquiries should not be allowed to stop here, but these should be prosecuted with a practical end in view. Attention should be directed to the causes and conditions affecting the origin and development of this bacillus, and the methods by which it gains an entrance into the body. We notice that Surgeon A. M. Davies, the assistant professor of hygiene at the Army Medical School, Netley, read a paper at the late International Congress of Hygiene, in which he suggested that the specific bacillus need not originate directly and immediately from a pre-existing bacillus or germ derived from a pre-existing case of the disease, but that it may acquire specific disease-producing properties from some variety or other of bacillus developed by a process of evolution under favouring conditions. If this ingenious hypothesis be correct, and a micro-organism, by the circumstances of its environment, may be endued with pathogenetic properties which did not originally belong to it, it will serve to explain many things connected with the prevalence and varieties of the disease known as

enteric fever. It is noteworthy that in the last ten years, and especially of recent years, there has been an increase in the total fever mortality. The percentage liability to contract enteric fever at certain ages and periods of service, the influence which season has upon its prevalence, and many other interesting subjects of inquiry, are set forth in the volume under review. We regret that within the limits at our disposal we are unable to touch upon the sections dealing with the native army and gaol population; but we may refer to the concluding paragraph of the report, which, adverting to Surgeon-Major D. D. Cunningham's further observations and experiments, says: these show that in Calcutta cholera is associated with many different species of comma bacilli, and that therefore Koch's theory of the existence of a single specific choleraic comma bacillus must be abandoned. This matter was, however, the subject of discussion at the late International Hygienic Congress.

THE BRITISH DENTAL ASSOCIATION.

THIS Association, which has been remarkably successful in binding together the scattered members of the dental profession and in giving them a distinct line of action and a definite policy, commenced its annual general meeting in the Examination Hall on Thursday morning. As a preliminary to the more important business, a conversazione was given by the president elect, Mr. J. S. Turner, and the vice-presidents, Sir Edwin Saunders, Sir John Tomes, F.R.S., and Dr. John Smith, LL.D. of Edinburgh, in the Whitehall room of the Hôtel Métropole. The meeting extends over three days, and finishes up with a garden party at Caterham, given by Sir John Tomes.

The programme of business is a good one, and includes such subjects of interest to the general profession as "Methods of Research in Bacteriology," "On the Choice of Anæsthetics in Dental Surgery and Operations about the Mouth"; a "Case of Tuberculosis of the Palate treated by Koch's Method"; and a "Demonstration of Cultures of the more important Micro-organisms." There are also papers on Dental Education—a question which seems yet unsettled amongst the dentists themselves. The technical papers include both mechanical and surgical matters relating to dentistry. In the demonstration department no less than fifteen gentlemen are announced to show their different methods of performing special operations on the teeth. Each operator is provided with a miniature operating room, furnished with all the ordinary conveniences of a dental surgery.

There is to be an exhibition of a large number of microscopic slides, and also of microphotographs on the screen of physiological and pathological sections, and several microscopists of well-known skill will demonstrate the latest methods of making and mounting sections for the microscope.

The headquarters of the Association are in the Hôtel Métropole, where the London members entertain the visitors on Thursday, Friday, and Saturday to lunch, in the Whitehall Room. On Thursday Mr. S. J. Hutchinson, the President of the Odontological Society, and the Council, give a conversazione to friends and members of the Association in the South Kensington Museum; and on Friday the members and friends dine together at the Hôtel Métropole. This is the second regular annual general meeting held in London, and the numbers present promise to far exceed any previous meeting of the Association.

The President (J. Smith Turner), in his opening address on Thursday, said that people seemed to think that their complement of thirty-two teeth was inexhaustible, and parted with them on the slightest provocation. The mouth formed a happy hunting ground for every charlatan with a nostrum to palm off upon a greedy public. After having dealt with the causes which lead to the premature decay of the teeth he said, "Civilisation has been blamed for much. I am inclined to blame the liberties we have taken with nature and her unerring processes for much of the dental distress now existing. With all the appearances of health and strength the teeth have been starved, and the great factors in healthy teeth so keenly competed for by the more active parts of the body must be supplied in our daily diet. In feeding a regiment we are feeding men who have been chosen for certain physical qualities and certified health, but with growing children in schools it is different, and although the power which makes one substance out of others may supply the well-covered frame, the absence of lime salts is the tale told to the dentist." Speaking of the British Dental Association, he said: "When the British Association was established eleven years ago, there were certain definite objects in view. Some of them concerned the Association, and others the general public. They could be divided into objects social, political or legal, and educational. All of these the Association had tried to follow with varying degrees of success. In testing the provisions of the Dentists Act they had in view the desire to awaken the public to the fact that they are daily preyed upon by people who make pretensions to having what they do not possess. They had been successful in showing the Medical Council that they had certain claims to their consideration, and these claims had been acknowledged satisfactorily.

The next meeting of this Association is fixed to be held at Manchester. A fuller account of the proceedings will be furnished in our next issue.

ASSOCIATION OF GERMAN NATURALISTS AND PHYSICIANS.

THE sixty-fourth annual meeting of this large scientific and medical association (it comprises no fewer than thirty-two sections) will take place at Halle on Sept. 21st to 25th. From the programme we extract the following as likely to be of especial interest to medical readers:—

Section 11. *General Pathology and Pathological Anatomy.* Professor Chiari (Prague): On Cerebellar Changes due to Hydrocephalus. Dr. Unna (Hamburg): Protoplasm Staining. Professor Eberth (Halle): Reparative Processes in the Cornea. Dr. Haasler: Compensatory Hypertrophy of the Lungs. Dr. Gerdes: Changes of the Cerebral Cortex in Dementia. Dr. Ackermann: Morbid Changes in the Human Placenta.

Section 14. *Medicine.*—Discussion on Koch's Treatment of Tuberculosis; opened by Dr. Aufrecht (Marburg).

Section 15. *Surgery.*—Professor v. Bergmann: The Cure of Defects in Bones. Professor Mikuliez: Gangrenous Herniæ. Professor Schönborn: Acute Tuberculous Osteomyelitis. Dr. Fraentzel: Treatment of Tuberculous Joint Disease by Injections of Iodoform Glycerine.

Section 16. *Obstetrics and Gynæcology.*—Dr. Winter Fever during Labour. Professor Kaltenbach: The Treatment of Endometritis. Dr. v. Herff: Etiology of Nephritis Gravidarum. Dr. Pantzer: Relations between Basedow's Disease and Female Genital Affections.

Section 17. *Diseases of Children.*—Papers on Vaccination by Drs. Pott, Risel, Pfeiffer, and Biedort. Koch's Remedy in Children's Diseases, by Drs. Ranke, Ganghoefer, and E. Leser. Dr. Bókai: On Intubation. Dr. Rehn: Hereditary Syphilis. Dr. Unger: Ventricular Meningitis.

Section 18. *Neurology and Psychiatry.*—Dr. Flechsig: Pathological Anatomy of Tabes Dorsalis. Dr. Mendel: Pathological Anatomy of Basedow's Disease. Dr. Siemerling: New Facts in Chronic Progressive Ophthalmoplegia. Dr. Binswanger: Pathological Anatomy of Progressive Paralysis. There are also sections on Diseases of the Eye, Diseases of the Ear, Laryngology and Rhinology, Dermatology and Syphilis (where the subject of tuberculin is to be discussed), Hygiene and Medical Police, Forensic Medicine, Medical Geography and Climatology, Military Hygiene, Dentistry, and Veterinary Medicine.

ARMY ORDER.

War Office, Aug. 10th, 1891

THE following Royal Warrant is promulgated to the army by his Royal Highness the Commander-in-Chief, with the approval of the Secretary of State for War.

ROYAL WARRANT.

Alteration of Ranks of, and Grant of Sick Leave to, Officers of the Medical Staff.

VICTORIA R.

Whereas we have deemed it expedient to alter in some respect the designations of the departmental ranks of our

Medical Staff, and also to provide for the grant of sick leave to officers of our Medical Staff on the same conditions as those which are applicable to regimental officers;

Our will and pleasure is that the following amendments shall be made in our Warrant of the 6th April, 1891:—

1. The following shall be inserted after Article 267:—267A. The substantive ranks of the officers of our Medical Staff shall be as follows. These ranks shall carry precedence and other advantages attaching to the rank indicated by the military portion of the title, but shall not (except as provided in Articles 269 and 271) entitle the officer to military command, or to the presidency of courts-martial, courts of inquiry, committees, or Boards of Survey:—Surgeon-Major-General, Surgeon-Colonel, Brigade-Surgeon-Lieutenant-Colonel, Surgeon-Lieutenant-Colonel, Surgeon-Major, Surgeon-Captain, Surgeon-Lieutenant. The Director-General of the Army Medical Department shall hold the substantive rank of Surgeon-Major-General.

2. In Article 268, in the first and second lines, the words "the undermentioned officers" shall be substituted for "an officer of a department of our army not having honorary rank"; and all references to medical officers in the article shall be omitted.

3. In Article 326 the following shall be substituted for the pay tables:—

—	At Head-quarters, inclusive of all allowances.	Exclusive of allowances.
	Yearly. £ s. d.	Daily. £ s. d.
Director-General of the Army Medical Department	1500 0 0	—
Surgeon-Major-General	1300 0 0	2 15 0
Surgeon-Colonel	900 0 0	2 0 0
Brigade-Surgeon-Lieutenant-Colonel	750 0 0	1 10 0
After 5 years in the rank	—	1 13 0
Surgeon-Lieutenant-Colonel—		
After 20 years' service	650 0 0	1 5 0
After 25 years' service	650 0 0	1 7 6
Surgeon-Major or Surgeon-Lieutenant Colonel	650 0 0	1 0 0
After 15 years' service	650 0 0	1 2 6
		Yearly.
Surgeon-Captain or Surgeon-Lieutenant	—	200 0 0
Surgeon-Captain—		
After 5 years' service	—	250 0 0
		Daily.
After 10 years' service	—	0 15 0
Surgeon on probation	—	0 8 0
Quarter-Master	—	As a Quarter-Master of Infantry (Arts. 187 and 191).

4. In Article 334, in the last line, and in Article 336, in the first line, the term "Surgeon-Lieutenant" shall be substituted for "Surgeon."

5. The following shall be inserted after Articles 338 and 339 respectively under the head of "Promotion": 338A. A Surgeon-Lieutenant shall, if he be recommended by the Director-General, be promoted to the rank of Surgeon-Captain on completing three years' full pay service. 339A. A Surgeon-Major shall, if he be recommended by the Director-General, be promoted to the rank of Surgeon-Lieutenant-Colonel on completing twenty years' full pay service.

6. In Article 339, in the first line, the term "Surgeon-Captain" shall be substituted for "Surgeon."

7. In Article 340, in the first line, the term "Brigade-Surgeon-Lieutenant-Colonel" shall be substituted for "Brigade-Surgeon," and in the third line the term "Surgeons-Lieutenant-Colonel" shall be substituted for "Surgeons-Major."

8. In Articles 341, 342, 343, 347, 361, and 367 the term "Surgeon-Major-General" shall be substituted for "Surgeon-General," "Surgeon-Colonel" for "Deputy Surgeon-General," and "Brigade-Surgeon-Lieutenant Colonel" for "Brigade Surgeon." In Article 347 the words "Surgeon-Captain or Surgeon-Lieutenant" will also be substituted for "Surgeon."

9. In Articles 362, 365, and 368 the words "or Surgeon-Lieutenant-Colonel" shall be inserted after "Surgeon-Major," the term "Surgeon-Captain" shall be substituted for "Surgeon," and the term "Brigade-Surgeon-Lieutenant-Colonel" shall be substituted for "Brigade Surgeon."

10. In Article 367, in the fourth line, the term "Surgeon-Lieutenant-Colonel" shall be substituted for "Surgeon-Major."

11. The following shall be inserted after Article 345:—*Sick leave:* 345A. An officer of our Medical Staff may be allowed sick leave of absence on full pay on the same conditions as those laid down for regimental officers by Article 258.

12. In Article 451, the words, "except as provided in Article 345A," shall be inserted at the beginning.

13. The following shall be substituted for the portions of the tables showing the half-pay and retired pay of officers of our Medical Staff in Articles 1046 and 1071:

Medical Staff and Medical Officers of Household Troops—Half-pay.

	Daily.
Surgeon-Major-General	£2 0 0
Surgeon-Colonel	1 15 0
Brigade-Surgeon-Lieutenant-Colonel—	
Under 30 years' service	1 7 6
After 30 ,,	1 10 0
Surgeon-Lieutenant-Colonel—	
After 20 years' service	1 0 0
,, 25 ,,	1 2 6
,, 30 ,,	1 5 0
Surgeon-Lieutenant-Colonel, Surgeon-Major, Surgeon-Captain, or Surgeon-Lieutenant—	
Under 5 years' service	0 6 0
After 5 ,,	0 8 0
,, 10 ,,	0 10 0
,, 15 ,,	0 13 6
Quarter-Master, Medical Staff—The half-pay laid down for a Quarter-Master in Art. 1042.	

Medical Staff and Medical Officers of Household Troops—Retired Pay.

	Yearly.
Director-General, Army Medical Department—	
After 7 years' service as Director-General, and not less than 30 years' service in the department	£1125
After 5 years' service as Director-General, and not less than 30 years' service in the department	1000
Under 5 years' service as Director-General, if retiring on account of ill-health, and after not less than 30 years' service in the department	875
After 3 years' service as Director-General, but with less than 30 years' service in the department, in addition to the retired pay of a Surgeon Major-General	100
	Daily.
Surgeon-Major-General, on retirement under Article 347, 457, or 458, or with 3 years' service as such,[1] if retiring voluntarily	£2 0 0
Surgeon-Colonel, on retirement under Article 347, 457, or 458, or with 3 years' service as such,[1] if retiring voluntarily	1 15 0
Brigade-Surgeon-Lieutenant-Colonel, on retirement under Article 347, 457, or 458, or with 3 years' service as such,[1] if retiring voluntarily—	
Under 30 years' service	1 7 6
After 30 ,,	1 10 0
Surgeon Lieutenant-Colonel—	
After 20 years' service	1 0 0
,, 25 ,,	1 2 6
,, 30 ,,	1 5 0
	Gratuity.
Surgeon-Lieutenant Colonel, Surgeon-Major, Surgeon-Captain, or Surgeon-Lieutenant—	
After 10 years' service	£1250
,, 15 ,,	1800
,, 18 ,,	2500
Quarter-Master, Medical Staff—As laid down in Article 1060.	

14. In Article 1071—L, in the first line, the words "Surgeon-Lieutenant-Colonel, Surgeon-Major, or Surgeon-Captain" shall be substituted for "Surgeon-Major or Surgeon."

Given at our Court at Osborne, this 7th day of August, in the 55th year of our reign.

By Her Majesty's Command,

EDWARD STANHOPE.

[1] The requirement of three years' service in the rank only applies, in the case of the Medical Staff, to officers promoted since the date of the warrant of Aug. 26th, 1889.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In twenty-eight of the largest English towns 6112 births and 3385 deaths were registered during the week ending Aug. 15th. The annual rate of mortality in these towns, which had been 19·6 and 19·1 per 1000 in the preceding two weeks, further declined to 18·8 last week. The rate was 20·1 in London and 17·7 in the twenty-seven provincial towns. During the past six weeks of the current quarter the death-rate in the twenty-eight towns averaged 18·2 per 1000, and was considerably below the mean rate in the corresponding periods of the ten years 1881–90. The lowest rates in these towns last week were 12·1 in Derby, 12·9 in Norwich, 13·0 in Portsmouth, and 13·6 in Bristol; the highest rates were 21·1 in Liverpool, 21·7 in Bolton, 24·2 in Sunderland, and 28·5 in Preston. The deaths referred to the principal zymotic diseases, which had been 653 and 622 in the preceding two weeks, further declined last week to 601; they included 382 from diarrhœa, 96 from whooping-cough, 39 from measles, 34 from diphtheria, 26 from "fever" (principally enteric), 24 from scarlet fever, and not one from small-pox. The lowest death-rates from these diseases were recorded in Bristol, Derby, Oldham, and Norwich; and the highest in Leeds, Sunderland, Leicester, and Preston. The greatest mortality from measles occurred in Cardiff and Sunderland; from whooping-cough in Newcastle-upon-Tyne, Cardiff, and Plymouth; from "fever" in Halifax; and from diarrhœa in Leeds, Wolverhampton, Sunderland, Leicester, and Preston. The mortality from "fever" showed no marked excess in any of the twenty-eight large towns. The 34 fatal cases of diphtheria included 22 in London, 6 in Salford, and 3 in Manchester. No death from small-pox was registered in any of the twenty-eight towns; and no small-pox patients were under treatment either in the Metropolitan Asylum Hospitals or in the Highgate Small-pox Hospital on Saturday last. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 924, against numbers increasing from 857 to 920 at the end of the preceding five weeks; the patients admitted during the week were 104, against 121 and 74 in the previous two weeks. The deaths referred to diseases of the respiratory organs in London, which had been 173 and 191 in the preceding two weeks, declined again to 185 last week, and almost corresponded with the average. The causes of 71, or 2·1 per cent., of the deaths in the twenty-eight towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Salford, Sunderland, and in four other smaller towns; the largest proportions of uncertified deaths were recorded in Birkenhead, Halifax, Liverpool, and Derby.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had declined in the preceding four weeks from 18·9 to 15·9 per 1000, rose again to 17·2 during the week ending Aug. 15th, but was 1·6 below the mean rate that prevailed during the same period in the twenty-eight large English towns. The rates in the eight Scotch towns ranged from 12·6 in Leith and 13·2 in Aberdeen to 18·3 in Dundee and 19·9 in Glasgow. The 442 deaths in these towns showed an increase of 32 upon the number in the preceding week, and included 41 which were referred to diarrhœa, 8 to whooping-cough, 6 to scarlet fever, 6 to "fever," 4 to diphtheria, 3 to measles, and not one to small-pox. In all, 68 deaths resulted upon these principal zymotic diseases, against 61 and 50 in the preceding two weeks. These 68 deaths were equal to an annual rate of 2·6 per 1000, which was 0·7 below the mean rate from the same diseases in the twenty-eight English towns. The fatal cases of diarrhœa, which had been 21 and 19 in the preceding two weeks, rose again last week to 41, of which 27 occurred in Glasgow and 6 in Greenock. The deaths from whooping-cough, which had been 17 and 14 in the previous two weeks, further declined to 8 last week, and included 5 in Glasgow. The 6 fatal cases of scarlet fever showed a slight further increase upon recent weekly numbers, and included 5 in Glasgow. The 6 deaths referred to "fever" exceeded those recorded in either of the preceding two weeks; and of the 4 fatal cases of diphtheria, 3 occurred in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had declined from 80 to 60 in the preceding three weeks, further fell last week to 54, and were 13 below the number in the corresponding week of last year. The causes of 47, or nearly 11 per cent., of the deaths in the eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had declined from 21·2 to 16·5 per 1000 in the preceding three weeks, rose again to 22·8 during the week ending Aug. 15th. During the past six weeks of the current quarter the death-rate in the city averaged 19·0 per 1000, the rate for the same period being 18·8 in London and 15·0 in Edinburgh. The 156 deaths in Dublin during the week under notice showed an increase of 43 upon the number in the preceding week, and included 8 which were referred to diarrhœa, 6 to whooping-cough, 2 to "fever," and not one either to small-pox, measles, scarlet fever, or diphtheria. In all, 16 deaths resulted from these principal zymotic diseases, equal to an annual rate of 2·3 per 1000, the zymotic death-rate during the same period being 3·7 in London and 1·0 in Edinburgh. The fatal cases of diarrhœa, which had been 1 in each of the preceding two weeks, rose to 8 last week. The deaths referred to whooping-cough, which had been 4 in each of the previous two weeks, increased to 6 last week. The two fatal cases of "fever" exceeded those recorded in recent weeks. The 156 deaths in Dublin included 20 of infants under one year of age, and 40 of persons aged upwards of sixty years; the deaths of infants differed but slightly from those recorded in recent weeks, while those of elderly persons showed a marked excess. Two inquest cases and 1 death from violence were registered during the week, and 60, or nearly 40 per cent., of the deaths occurred in public institutions. The causes of 13, or more than 8 per cent., of the deaths in the city were not certified.

Correspondence.

"Audi alteram partem."

AN EPIDEMIC OF ECZEMA.

To the Editors of THE LANCET.

SIRS,—In your issues of August 1st and 8th Dr. Savill and Dr. Colcott Fox draw attention to an epidemic of "eczema or some disease which in its appearance and symptoms bears a very strong resemblance to that eruption," at present existing in the infirmaries of Paddington and Marylebone. As St. Mary's Hospital is situated in the same district of London I think it important to record the fact that in my ward for male patients there have occurred during the last few weeks four cases of an anomalous eruption, of a more or less eczematous type, but mainly papular or erythematous in character, of acute onset, yet for the most part without pyrexia, rapidly spreading by implication of new areas, causing moderate but not severe irritation, and ending in a week or ten days with desquamation of large flakes of epidermis, reminding one of scarlatina. The first case was that of a patient who had been tracheotomised, and the eruption first appeared as an erythematous area around the wound on June 11th. A few days after this papules appeared on the cheeks, and the limbs and trunk became similarly affected. No rise of temperature occurred. Desquamation commenced on the 22nd.

The second case occurred a month later in a patient who had been in the hospital since April 30th suffering from adherent pericardium and dilated heart, with dropsy. The distension of the skin had been so severe as to cause numerous "lineæ atrophicæ," and on July 6th it was noticed that all these were red, while the skin around them was normal. Very soon afterwards a papulo-erythematous rash appeared on the dorsum of the feet. In this case Southey's tubes had been inserted near each ankle, but the eruption did not commence in the immediate neighbourhood of the punctures. The rash quickly spread up the thighs, involving large areas, but not the whole, of the surface, and afterwards reached the trunk and the face. On the trunk the eruption much resembled that of measles. There was no coryza or

sore throat. Free desquamation commenced on July 15th. No rise of temperature took place, and the rash vanished entirely, but desquamation over the soles was slowly effected. Although this patient was severely ill, and has continued gradually to grow worse, it did not appear that the eruption at all added to the gravity of his condition.

The third case occurred in a patient admitted for alcoholism. The rash was mainly papular. It was first observed, on July 19th, on the face, neck, and arms, whence it spread to the trunk and lower limbs. Desquamation commenced on the 23rd. The patient seemed in no way affected by the eruption, and left the hospital on the 24th.

The fourth, and most severe, case occurred on July 27th. The patient was a man of fifty-five, with a dilated heart; admitted on July 14th. Under treatment he had considerably improved, and his cardiac dulness diminished. On the 29th a papulo-erythematous rash was found on his lower limbs, which he said had first appeared on his feet two days earlier. A large erythematous area occupied the front and inner side of each thigh, quite symmetrically. His face was somewhat reddened, but without distinct papules. The temperature was 99°. It remained at this level on the 30th, but rose to 99·2° and 101° on the 31st. On Aug. 1st I found distinct papules on the cheeks, and a considerable sprinkling of red spots on the trunk. The erythematous areas on the thighs and feet were now covered with small vesicles, with slightly turbid contents. The temperature was 100°. The rash continued to spread during the next day or two, but no more vesication occurred. The vesicles soon ruptured, with the exception of those on the feet, which increased in size. The greater part of the trunk became covered with the erythematous rash, but subsidence and desquamation had commenced on the 4th. The patient was evidently feebler. On the 5th his temperature rose to 102°, with increasing feebleness, and it continued at the same height till his death the next day. Post-mortem examination showed much dilatation and hypertrophy of the heart, which weighed 21 oz., but without any valvular lesion; kidney slightly granular. In this case it seemed as if the eruption was the determining cause of death, as the patient had considerably improved under treatment. It was the most severe of the four, and the only one in which vesication occurred. All four occurred in the same ward, and no others have been observed in the hospital. Whatever be their nature they seem clearly to belong to the type described by Dr. Savill.—I am, Sirs, yours truly,

DAVID B. LEES, M.D., F.R.C.P.,
Physician to St. Mary's Hospital and to the Hospital for Sick Children.
Weymouth-street, W.

HUMAN *AND* ANIMAL LYMPH.

To the Editors of THE LANCET.

SIRS,—Under the heading "Human *or* Animal Lymph," Brigade Surgeon Pringle, M.D., is very severe on the advocates of lymph, direct and indirect, from the calf. It is some years since I strongly advocated in the columns of THE LANCET and elsewhere the general use of calf lymph, and I have used it extensively both in my own and other men's practices since. During the last two years I have had an opportunity of testing the value of the "arm-to-arm" system as public vaccinator, and have come to the conclusion: (1) That "animal lymph," in tubes or on lancet-shaped ivory points, will keep for a considerable time, amounting to weeks, if not months; (2) that I have never had an accident, and seldom a failure (not 2 per cent.), with calf lymph; (3) that I never touch the vesicles, and give strict instructions to the mother on no account to "touch" or "wet," or otherwise interfere with "the arm" before or after inspection. I generally made the necessary scratches with the point, carrying the lymph as recommended by the late Dr. Martin of Boston. The vesicles are, as a rule, well formed and mature on the ninth or tenth day, which is somewhat later than the "arm-to-arm" system. The crusts usually adhere for twenty-one days and scale off several times before the resulting scar is exposed, the latter being well marked and depressed. The child seldom loses a night's sleep, and erysipelas and axillary abscess are most exceptional. Now, can all this be said of "arm-to-arm" vaccination? I think not. I admit at once its conveniences, as nothing is easier than to choose your vaccinifer by the rough-and-ready choice of visual diagnosis; nor is the method a bad one if duly supplemented by the mother's statements as to the health of the baby and the "other babies" at home. For this reason a first baby is not so reliable as a vaccinifer. But how often do we find among a score or more babies scarcely one whose arm is reliable as a source of immediate supply? In that case the best looking is taken, and perhaps a dozen or more are vaccinated from this questionable source. It is so very convenient! It is under these circumstances that stored lymph is so valuable, and, indeed, necessary, and Dr. Pringle has not demonstrated that "stored" human lymph is better than "stored" calf lymph. Is he prepared to say that the "crust" of a calf lymph vesicle "scientifically used" (an expression I fail to understand) is of more value than stored calf lymph, the crust being the last stage of the vesicle; and that "stored" human lymph is better than both? As to scraping or compressing the vesicles on the calf's abdomen or the matured vesicles on a child's arm, I believe the one to be as mythical as the other. Certainly, Dr. Warlomont of Brussels, whom I saw operate on the calf some years since, did nothing of the sort; and is there a mother in England who would allow such a thing? I question it. The custom may prevail in India, where the natives are, I understand, less thin-skinned. As direct results of arm-to-arm vaccination, I have seen ugly accidents. Unless obliged, I will not enumerate them. Most depend on the vaccinifer, but part are due to the vaccinator and his methods, including dirty hands and instruments, and carelessness before and after the maturation of the "pocks," the mother in this respect being very faulty. Our future aim should be aseptic vaccination, and whether this is best obtained by certain devices extensively advertised, or by non-interference with the vesicle, is a question to be decided. For, after all, it is the septic condition of the vesicle, however induced, which is to blame for accidents, rather than the lymph itself. Dr. Pringle has been kind enough to denounce our ignorance—our "appalling ignorance"!—of "practical vaccination"; but he must go a step further, and tell us, who are willing to be taught, how to avoid the "accidents" which we all deplore. I refrain from entering into the unsettled question of comparative immunity.

I am, Sirs, yours obediently,

London, Aug. 17th, 1891. ALEX. MCCOOK WEIR, M.D. &c.

EFFECTS OF AN OVERDOSE OF CANNABIS INDICA.

To the Editors of THE LANCET.

SIRS,—The following experience of an overdose of cannabis indica may interest some of your readers.

A chemist supplied me with twelve pills, each supposed to contain half a grain of the extract of cannabis indica. I took one about noon, and about half-past one I had lunch without alcohol in any form. Soon after this, while arranging a few photographs, I found myself much puzzled at what I was doing, and, though the photographs were numbered according to a list, I got utterly bewildered among them. The symptoms thereupon became established and lasted till about 7 P.M.—that is to say, for about five hours. They were characterised by absolute forgetfulness of the thought, or speech, or act of the previous moment. I would, for example, be startled by hearing, as it were, the echo of the last words of a sentence I had just spoken without knowing what it was about; or, having proposed to go for a walk, I would meet my companion at the street-door and wonder why we were there. These symptoms came on in bouts, which lasted a few minutes, and were separated by periods fairly free from them. The first two or three bouts were separated by intermissions of about a quarter of an hour; the intermissions then increased to half an hour, three-quarters of an hour, and an hour, as the symptoms subsided. There was no unusual or unpleasant feeling in the head, or any exaltation of spirits; but, except for the blanks of forgetfulness, a perfectly clear mind, which rendered the symptoms none the less alarming. Though memory failed from sentence to sentence, thought to thought, and act to act, it was quite clear as to what had been happening during the afternoon in question, so that now, three weeks later, I can remember all the occurrences of the afternoon on which the symptoms were present. I may add that, while affected by the drug, my

conversation and behaviour were quite natural, and none of those about me noticed anything wrong even when I explained what my symptoms were. At one time I tried lying down quietly, but I gave it up, as I found that thought succeeded thought only to be immediately blotted out, producing a most unpleasant effect and no inclination for sleep. Walking about the streets and among the people on the seashore was the pleasantest way of getting through the symptoms. I tried no remedy, as when the symptoms were established I knew that the drug had been absorbed, and that in small quantity.

I am, Sirs, yours faithfully,

July 12th, 1891. S. L. D.

RECOVERY FROM APPARENT DEATH FROM CHLOROFORM.

To the Editors of THE LANCET.

SIRS,—At a time when there have been so many deaths from anæsthetics, it may be worth while to record the particulars of a recovery from what appeared to be death from chloroform. On the 21st inst. my colleague, Mr. Algernon Moir, proceeded to chloroform a little girl five years old. On three previous occasions (twice by him and once by myself) she had been similarly anæsthetised without anything unusual occurring. This time she had been carefully prepared by abstinence from food as far as we knew, and the clothes were perfectly loose and everything in order. She took the drug in the usual fashion and went off quietly and quickly, and as soon as she appeared to be under its influence Mr. Moir sent me word that she was ready. In a few seconds, probably about thirty, after he sent the message I was in the room, and found Mr. Moir performing artificial respiration with one hand whilst he drew out the tongue with the other. The child appeared to me to be quite dead. I relieved him at once of the artificial respiration and compressed the ribs from side to side myself, the air passing in and out freely. As the natural colour continued to leave the face and to be replaced by a livid pallor, I signed to him to use the amyl nitrite, which, according to our invariable custom, was close at hand. He at once held the open bottle to her mouth, through which the air was going freely, as he continued to draw out the tongue. My arms were beginning to give out, and my head to be affected with the amyl, when there was a sound as of the vocal cords moving, but I kept on until forced to rest for a moment, when I found that the breathing went on of itself, and that the child was alive. How long all this took I cannot tell. At such supreme moments time can only be measured by fatigue. The matron and nurses who were present assure me that it was more than five minutes before signs of life appeared. I have had several cases of resuscitation since a similar recovery from death of a dog, an account of which you were good enough to publish on March 7th, 1885, but none of such gravity as this. I firmly believe that without the amyl the child's life would not have been saved, and as I do not remember that it was tried in any of the cases of death which I have read lately I send this account in the hope that it may be used in cases like the above, and used promptly—of course, with the aid of artificial respiration. Mr. Moir is quite clear as to the mode of the very near approach to death in this instance. He says that pulse and respiration ceased at the same moment. The cause was not far to seek. Although the nurse had been most careful to keep her from eating anything, the child had managed to devour an apple, of which, on becoming conscious, she vomited the core, the stalk, and part of the skin. It appears, therefore, that this indigestible matter had caused reflex paralysis of the cardiac and pulmonary centres, as at no time was there any obstruction to the passage of air.

I am, Sirs, your obedient servant,

Liverpool, July 29th, 1891. GEO. G. WALKER, F.R.C.S.

EASY METHOD OF ENUCLEATING A RUPTURED EYEBALL.

To the Editors of THE LANCET.

SIRS,—It has twice lately fallen to my lot to have to enucleate eyeballs that have been badly ruptured—one by the horn of a bullock, the other by an oyster-shell. The operation of enucleation is described as being more difficult when the eyeball is ruptured than when it is not ruptured—e.g., Nettleship on "Diseases of the Eye," p. 324, second edition; also Brudenell Carter on "Diseases of the Eye," p. 483, first edition. I have, however, not read or heard of a simple device which renders the operation as perfectly easy as when the globe is intact. The procedure is as follows. First stuff the globe with wool through the laceration in its coats. Secondly (and this must not be neglected or the wool will slip out), unite the edges of the gap with a suture, leaving the ends long enough for any necessary traction. I can scarcely imagine this proceeding to be original; but its utility, and my ignorance of its having been previously practised, must be my apology for trespassing on your valuable space.

I am, Sirs, yours faithfully,

JAMES RYLEY, M.D. Lond., M.R.C.S. Eng.

King-street, Great Yarmouth, Aug. 17th, 1891.

THE CURE OF CONSUMPTION.

To the Editors of THE LANCET.

SIRS,—I was much surprised to find THE LANCET noting with approval the letter of "Army Medical Reserve," in which he implies that I have been guilty of a grave breach of the unwritten laws of the profession in not bringing my investigations on this subject before the profession, and I feel sure that as an act of simple justice you will at once enable me to state that I am not responsible for its non-appearance in your columns. To me it has been and is a source of great regret and much disappointment that the arguments and practical evidence that show that consumption can be *with certainty* prevented and cured have not been prominently brought before the profession. I am satisfied that if that course were adopted it would lead to a thorough practical investigation and the universal acceptance of the principles for which I have been so long contending. Will THE LANCET afford me that opportunity? It is evident that physical development, as I use the term, and the system that certainly has and is curing consumption, are totally misunderstood by the writer of the comments above referred to.

I am, Sirs, yours faithfully,

GODFREY W. HAMBLETON.

Bentinck-street, W., Aug. 11th, 1891.

*** We have certainly afforded Mr. Hambleton an opportunity for expressing his views (*vide* THE LANCET, 1887–8); but what is really required is an impartial investigation of them by a committee of medical experts, and he should endeavour to gain the coöperation of one of our medical societies to this end. He might surely have taken advantage of last week's Congress to ventilate his subject.—ED. L.

THE TUBERCULOSIS CONGRESS.

(FROM OUR PARIS CORRESPONDENT.)

THIS biennial Congress, inaugurated by Professor Verneuil and Dr. L. H. Petit, one of the librarians of the Paris Faculty, has just brought its second session to a close, and English members of our profession will be glad to be made acquainted with the results of its deliberations on the all-absorbing subject of the disease science is making such strenuous efforts to master. It may at once be said that no startling novelty in the shape of remedial measures dates its birth from this *réunion*, the most fruitful points of discussion having had reference to the relations existing between tubercle bacilli as met with in different animals. It is manifestly of the most vital importance to arrive at some decision as to the identity or non-identity of the micro-organisms determining the evolution of the tuberculous process in man, cows, birds, and rodents. With regard to avian tuberculosis, M. Vignal comes to the conclusion that the bacillus characterising it differs *in toto* from the human bacillus. M. Vignal, in effect, inoculated with the sputa of tuberculous patients a series of guinea-pigs, which all died; whereas a pheasant, which had undergone successive and simultaneous inoculations, survived. MM. Strauss and

Gamaleia arrive at the same conclusion, relying upon the fact that, albeit there is apparent identity as regards form and reaction towards aniline dyes, the gallinaceous bacillus develops at 45° C., a temperature which does not favour the growth of the human variety. The aspect of the respective cultures serves also to distinguish them. Further, the dog is (notwithstanding some assertions to the contrary) susceptible to the onslaughts of the human bacillus, while remaining almost totally refractory to those of the bird. The fowl, on the other hand, is absolutely refractory to the action of the human bacillus, while offering no resistance to the bacillus of the pheasant. Rabbits and guinea-pigs are receptive of the two kinds of bacillus, but in them the human micro-organism is productive of tubercle, the gallinaceous variety only provoking a special kind of septicæmia. Notwithstanding the opposition of such well-known observers as Gilbert, Cadiot, and Roger, besides Courmont and Dor, this view of the case appeared to meet with general acceptance. The members of the Congress had on the morning of the 28th ult. an opportunity of verifying in the laboratory of Professor Strauss, the totally different aspects presented by the two cultures. We can now well understand how the antidotal properties of dog's (and goat's, this animal having been successfully inoculated with human tuberculous virus) serum may be a subject of serious doubt, and we can only ascribe the partially beneficial effects observed by MM. Richet and Héricourt, in the words of Professor Verneuil at the Hôtel Dieu, to impressions of a psychical order. Professor Semmola of Naples informed the Congress that, although he was unable to record a single case of cure by means of Richet's method, he had noted good effects from the simultaneous employment of this treatment and iodoform administered internally in doses of one-third of a grain every two hours. On the other hand, Professor Pinard says that so excellent have been the results of the dog's serum (hæmocyne) treatment at the Clinique Baudelocque, that he pursues it as a routine prophylactic practice for all children of tuberculous mothers whenever the weight of such children is below two kilogrammes. He lauds the method as a powerful auxiliary to the incubator and the system of feeding by *gavage*.

The hereditary nature of tuberculosis is another question that engaged the attention of the Congress, the discussion yielding valuable information on this much-mooted point. It is generally believed that tuberculosis is a hereditary disease *par excellence*, whereas it results, from the investigations of several authorities who spoke thereon at the Congress, that it is only the soil that is inherited, actual congenital tuberculosis being a great rarity. Thus, Vignal tells us that during the past eight years the bodies of all infants dying at the Paris Clinique d'Accouchement have been systematically subjected to a searching post-mortem examination, and that, moreover, fragments of the liver, spleen, and placenta of children born of obviously phthisical mothers have been inoculated into guinea-pigs; while the sputa (or, in case of death, the débris of the organs) of the mothers were injected into "witness" guinea-pigs. These latter invariably died tuberculous, whereas all the rest, kept under observation for a period of four months, survived. These interesting experiments were rendered still more conclusive by the following: The liver and spleen substance of eleven baby guinea-pigs (born of mothers into whose peritoneal cavities there had been introduced cultures of Koch's bacillus) was injected into nineteen healthy guinea-pigs. Some of these animals were killed after the lapse of five months, and the necropsy failed to bring to light any lesion. All the rest are still alive and healthy. M. Hutinel has also inoculated guinea-pigs with fragments of the placenta and other organs of stillborn infants of phthisical patients, with a negative result. Out of 118 necropsies of children under one year he found tuberculous lesions only in four instances. After one year the number of tuberculous patients increases rapidly, one-third of infants between one and two years old being thus affected. Tuberculous mediastinal glands, however isolated they may appear, are, in the infant, invariably due to a primarily pulmonary lesion. Dr. Jacoby recalled the fact that some years ago he had reported in the columns of a Philadelphia journal the necropsy of a human fœtus whose organs were simply one mass of tubercle. As regards the identity of bovine and human tuberculous, M. Chauveau pronounces in favour of it, basing his belief on the positive results of inoculations of human tuberculous virus into the cow through the medium of the stomach, the veins, and the subcutaneous areolar tissue.

In my next letter I propose to enlighten your readers on the further proceedings of the Congress, which brought its labours to a close by a banquet at Marguery's. The novel toast, "Good Health to the Tuberculous," proposed by M. Poirier, the successor of Professor Farabeuf as *chef des travaux pratiques*, was duly honoured. Professor Verneuil has been elected President of the next Congress, to be held in this city in 1893.

Phthisis in the Ranks of the Garde Républicaine.

The ordinary French linesman, or *petit pion-pion*, as he is affectionately denominated, does not, as he marches, or rather slouches, along the boulevards, impress the intelligent English tourist with a favourable idea of his martial qualities. But the most rampant Gallophobe must allow that the men comprising the Garde Républicaine are well set-up fellows, and apparently troops of whom any country might be proud. Sinister reports in several Paris journals have, however, tended to modify this favourable opinion of the physique of these regiments, the flower of the French army. It appears that pulmonary tuberculosis is exceedingly rife in this corps. The reasons assigned for the prevalence of the disease in such a picked body of seasoned soldiers are the arduous duties of these military policemen, more especially the night duty devolving upon them at all places of public entertainment, their unnecessarily heavy uniform, and, above all, the defective hygienic condition of their barracks, which are mostly antiquated and unsuited for modern civilian requirements. Forewarned is forearmed, and the active Minister of War is hardly the man to allow such a sad state of things to persist.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Deaths under Anæsthetics.

As already described in your columns, the report of the special committee appointed to investigate into the deaths this year at the Infirmary has been given in to the Board of Management, and they conclude that there was no suspicion to be attached to the quality of the chloroform used. Death under the administration of methylene is not often recorded. A case has recently occurred in which this anæsthetic was being used prior to an operation for removal of a cancerous growth. The operation was partly completed, the patient having been under the influence of the anæsthetic for twenty minutes.

Cricketers at a Hospital.

At the Ancoats Hospital two cots, named respectively the "Harrow" and the "Eton" cot, have been endowed by old Eton and Harrow boys. Last week a team of the Harrow Wanderers were playing cricket here, and paid a visit early in the morning to the hospital, and took much interest in the cot that bears the name of their old school. Such a visit cannot but be productive of good to both hospital and visitors.

River Pollution and the Ship Canal.

The completion of the Manchester Ship Canal is now within measurable distance, and much nearer than that is the nuisance that will arise from the acres of docks and impounded water, unless more vigorous steps be taken to purify and stop the pollution of the streams and rivers which form the feeders to the canal. Already complaints are made about the condition of the water now in the Salford docks, and the company reply it is no fault of theirs, but of those who send the water down to them. By both the Salford and the Manchester Corporations the subject will have to be taken seriously and vigorously in hand, and Dr. Simpson has given notice for the next meeting of the City Council that he will move a resolution having an important bearing thereon

Manchester, August 18th

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

West Bromwich District Hospital.

THE annual meeting of the governors of this institution was held on the 11th inst. under the presidency of Mr. J. H. Chance. The report showed that the total number of in-patients treated during the year was 655, of which 467 were accidents or urgent cases. In the eye department 62 in-patients had been admitted and 1113 out-patients treated. 5285 out-patients had also received treatment. These figures showed an increase in the general department of 58 in-patients and a decrease of 278 in the out-patients. The total expenditure for the year was £3301 7*s.* 10½*d.*; the total amount received from all sources was £2960 6*s.* 3*d.* The chairman made some comments upon the difference between the income and expenditure, and trusted that before another year they might be made more equal.

Opening of a New Hospital at Bromsgrove.

On the 4th inst. a new hospital was formally opened by the Earl of Coventry, the Lord-Lieutenant of the County, at Bromsgrove. An interesting meeting was held, opened by the Bishop of Worcester with a religious service. The hospital supplants the former one, and contains sixteen beds, it is admirably arranged, well fitted, and will afford a decided advantage to the district.

Rowdyism Rampant.

In all large cities there is a residuum of the population ever ready on the slightest pretext to wage war upon the defenceless and to defy authority. A gang of ruffians of this kind lately set upon some poor organ grinders, one of whom was injured by a buckled belt upon the head to such a degree that his life is despaired of. As usual, there is a difficulty in making arrests, for the crowd dissolves under the advent of sufficient superior force—that is generally when the mischief is done. Protection is not easy under the circumstances in which such assaults are made, but a summary method of dealing with these sneaking offenders would afford a salutary example for the discouragement of their companions in crimes of this sort.

Birmingham, Aug. 13th.

NORTHERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

Medical Defence.

A GOOD deal of interest was taken by the profession in the public meeting held to-day of medical practitioners of the counties of Northumberland, Cumberland, Durham, and Westmoreland, to further the objects of the Medical Defence Union. The meeting was held in the Examination Hall of the College of Medicine here. The chair was taken by Professor Philipson, and Dr. Arnison, Mr. G. E. Williamson, and others addressed the meeting. A branch for the northern counties before mentioned was formed, and there was a considerable accession of members. The recent successful prosecution at the Durham Assizes (noted in this correspondence) of a woman charged with the circulation of infamous letters and groundless reports as to the character of a respected practitioner in Sunderland has directed the profession in the north of England to the value of this Association, and shown them the need of such combination when called to repel charges affecting their moral and professional reputation. The branch was named the "North of England Branch." Dr. Philipson was elected president, and Mr. G. E. Williamson hon. sec. A hearty vote of thanks was accorded to Dr. Leslie Phillips for his services.

Miners' Lamps.

Professor F. Clowes, of University College, Nottingham (says the *Newcastle Chronicle*), has been engaged in his favourite study of miners' safety lamps, and considers that the best in point of sensitiveness and illuminating power is one which burns benzoline contained in a sponge reservoir, the flame being surrounded by a glass cylinder. Professor Clowes is well known in Newcastle, and delivered the first of a series of lectures at the College of Physical Science, on "Colliery Explosions and How to Prevent Them."

Carlisle.

The movement for extending the Cumberland Infirmary to meet its nursing requirements, and also as a general nurses' home, is making progress. An influential meeting has been held in Carlisle, at which the Bishop presided, and it was decided to form a committee of tradesmen to canvass the city for subscriptions. A considerable amount has been already got together for the object.

A Suicidal Epidemic.

An unusual number of suicides are now noticed to occur in the county of Cumberland and also at Kendal—so much so that it is termed an epidemic, especially as regards the latter place. Certainly, as perhaps bearing on the matter, there has been a marked absence of the sunshine usual at this time of year, and instead a continuance of dull heavy weather. The weather has been observed to be brighter on the coast, but most depressing inland.

A Case for the Registrar-General.

At a late meeting of the Carlisle guardians a curious case came up for consideration. It was that of a child under the care of the guardians having two fathers and two mothers, at least so registered. The child was born at South Shields, and when seven days old it was taken to Carlisle, and was registered as being born in that city. It was then left on the doorsteps of a man, who caused it to be registered again. The case is to be brought before the Registrar-General.

South Shields: the Dispensary Ticket Question.

At the annual meeting of the Ingham Infirmary, South Shields, the abuse of the ticket question was under consideration. One governor thought they had a right to give free tickets to anyone, but it was pointed out the charity was for the poor alone, and not for those able but unwilling to pay, and if the abuse was further continued the dispensary would have to be closed, and that would prove a loss to the sick poor.

Sunderland: Proposed Convalescent Home.

When the Victoria Hall disaster took place in Sunderland about seven years ago, by which 183 children lost their lives, a fund was commenced for providing a children's convalescent home in connexion with the infirmary, but for some reason the object has never been carried out. The committee think that the time has arrived for putting this money, amounting, I believe, to about £2500, to some practical use, and it is proposed to use it for a fund to establish a general convalescent home for Sunderland and Wearside after the style of the magnificent institution at Whitley. Of course, the amount in hand can only be regarded as a nucleus, if this is intended, and it may be many long years before the object can be attained. Mr. James Laing, J.P., of Thornhill, has sent a donation of £100 towards the building fund of the Sunderland and North Durham Eye Infirmary. It is announced that the Bishop of Durham (Dr. Wescott) has accepted the invitation of the Sunderland Infirmary Committee to lay the foundation-stone of the new isolation block of the infirmary on Sept. 28th (conditionally). The erection of this block on the Durham-road, Sunderland, will make this already fine infirmary one of the best equipped and most complete in the kingdom.

Norway and Doctors' Holidays.

Following close upon the Emperor of Germany and the Prince of Naples, numbers of hard-worked medical men are on their way to Norwegian fells and fjords. I think THE LANCET'S holiday article of last week has decided and hastened many. I was across last month, and, as it was my first visit, I went from the Tyne direct to Christiania. I was away just ten days, five of which I spent in the capital and its delightful suburbs, and the suburbs of Christiania are on the water. Sunrise over this northern Venice should be seen. Travelling is very cheap, also living; but the fare is different from home, wholesome, and the change does one good. Intending travellers should be off at once, but it is to be remembered that there appears to be one hour's more daylight at night in Norway than with us.

Newcastle-on-Tyne, August 19th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Irish Convict Prisons.

DURING the year ended March 31st last, the deaths among convicts were only two in number, one from general paralysis, the other from anæmia and syncope, representing a mortality of 4·3 per 1000, a very low rate considering the class from which convicts are drawn. The class of first convictions of convicts, the "select class," continues to give excellent results, for by this means the more depraved convicts are not allowed to associate with those who have not previously been convicted. The General Prisons Board in their recent report again call attention to a recommended revision in the convict dietary scales, and had hoped that a committee, such as was appointed some years ago, would again be called together for the revision of these dietaries, which the recent alterations in the disposition of the convict systems so urgently demand.

Sanitary Condition of Tullamore Gaol.

The joint report of Sir Charles Cameron and Mr. Parry to the General Prisons Board on the sanitary condition of Tullamore prison has been issued as a Parliamentary paper. They are of opinion that the building is well circumstanced as regards sanitation, it is favourably situated, and obtains an abundant share of sunshine, and is thoroughly ventilated, while the drains and fittings are satisfactory. They could not detect any defect which could, in their opinion, have given rise to the outbreak of typhoid fever, but there were a larger number of cases in the town before the outbreak occurred at the gaol; and it can easily be understood that there are many ways in which the infection might have been carried into the prison from the town. Mr. Parry furnishes some additional particulars, which under the circumstances are of interest. It appears that the sewage of the prison is discharged into an open cesspool at a distance from the walls, and there is no trap apparently on the line of the main outfall drain, the mouth of which is exposed to the wind, so that the sewer air may be driven back towards the buildings. But it may be added that most, if not all, of the tributary drains are intercepted by ventilated traps from the main drain, and that there is no evidence to show that any sewer air actually makes its way into the building. It is obvious, Mr. Parry says, that the underground work is capable of great improvement, and he makes several suggestions to this end. The existing method of sewage disposal is, he states, open to adverse criticism, as the accumulation of sewage in warm weather is likely to create a very serious nuisance, and a very great improvement could be effected if sufficient land were acquired to enable some simple system of irrigation to be adopted. Failing this, steps should be taken to purify the sewage, as a cesspool such as the one which at present exists is liable to become a vehicle for the communication of disease.

Apothecaries' Hall of Ireland.

At the annual meeting of the governors held recently, a resolution was adopted admitting women to the examinations for the diploma of the Hall under the usual regulations. Mr. Thomas Collins, M.R.C.S., has been reappointed representative of the Apothecaries' Hall on the General Medical Council for the ensuing year.

Green-street Court-house, Dublin.

The Corporation of Dublin at their next meeting will receive a deputation representing the legal profession and the citizens on the subject of the sanitary condition of the court-house.

Queen's College, Belfast.

From the report of the President (Rev. Thos. Hamilton, D.D.) for the year 1890-91, the number of students in attendance during the session was as follows: In the Faculty of Arts, 184; in the Faculty of Medicine, 229; in Law, 29; in Engineering, 11—making in all (allowing for three students who attended in more than one faculty) a total of 450, of whom 403 matriculated. The number of freshmen who entered for the first time was 127. All the various religious denominations prevailing in the north of Ireland were represented amongst the students. Fourteen ladies attended during the session, and the President, in his report, says he trusts the disabilities under which they suffer (not being eligible for College prizes and scholarships, &c.) will shortly be removed. This year the College had conferred upon it by Her Majesty's Commissioners for the Exhibition of 1851, the nomination to a new scholarship of £150 per annum, tenable for two years, or in special cases for three. It has been awarded to Mr. Moore. Next session another prize, the Blayney Exhibition, founded out out of moneys bequeathed by the late Lord Blaney, will be offered for competition. The discipline of the College continues to be excellent, no student being charged before the Council with any offence during the year. The histological laboratory has been enlarged and altered and the Lords of the Treasury have sanctioned a grant towards the erection of a new set of chemical laboratories, and practical class-rooms, with the necessary adjuncts, part of which the President hopes will be ready for use at the beginning of the next summer session. During the past session the classes (conducted under the Belfast University extension scheme) of English literature, chemistry, astronomy, and political economy were attended by 1417 students. In conclusion, the President points out that the College requires more buildings, several additional chairs, and enlarged equipments of various kinds, and he appeals to the State and to the Belfast citizens to do their duty in this matter. The Belfast students continue to gain a large share of the prizes and honours of the Royal University, and at the recent summer examinations (the results of which are just out), Queen's College, Belfast, with its distinguished students, won twenty first-class honours and fifty-two second-class, together with nineteen valuable exhibitions in the Royal University. As against the twenty first-class honours obtained by Belfast, Queen's College, Cork, won one and Galway five.

The Lurgan Water-supply.

For more than twenty years past Lurgan has been experiencing the want of a proper water-supply, and this defect has been more and more felt in recent years owing to the rapidly increasing size of the town. An arrangement has finally been made by the town commissioners to procure the supply of water by steam pumping from Lough Neagh, and it is hoped in the course of a year and a half a good supply of water will be available for the Lurgan people.

Munificent Gift to Belfast.

On Aug. 10th the very valuable piece of ground presented to the citizens of Belfast as a public park by Mr. R. G. Dunville, D.L., was inaugurated by the Marquis of Dufferin and Ava. The park, which contains five acres in a densely populated district, is a portion of the ground which the late Mr. Wm. Dunville gave, with other endowments, to perpetuate the memory of his sister, who died in 1863. On this ground about £3000 were expended by Mr. W. Dunville on buildings and streets, and he also invested in trustees a sum of £8000. At present, under this trust, £100 per annum is paid to the Belfast Government School of Art, and £145 per annum forms the endowment of two Dunville Studentships in Queen's College, Belfast. Mr. R. G. Dunville determined to acquire that portion of the ground now known as the Dunville Park from the trustees, and he has done this by presenting in 1890 to the corporation the sum of £8350, the interest on which enables them to discharge the rent at which they have obtained the ground from the trustees. By this act of munificence not only has Mr. Dunville presented the citizens of Belfast with a park, but he has increased the income of the trustees of the property by £250 per annum, which will be devoted to the education in physiology and hygiene of persons of both sexes. At the luncheon given subsequently to the opening of the park, Lord Dufferin read a letter from Mr. Dunville, enclosing a cheque for £5000 to be handed to the Mayor to defray the entire cost of enclosing and laying out the park, erecting a fountain, and building a suitable park-keeper's house. In all, Mr. Dunville's munificent gift to the city of Belfast amounts to £13,350. Great regret was felt that, owing to the death of his sister, Mr. Dunville was unable to be at the luncheon, but his son, who is private secretary to the Marquis of Hartington, was present, and replied to the toast of his father's health.

Health of Dublin: June Quarter.

The births were equal to a birth-rate of 30·2, and the deaths to 23·4 per 1000. The mortality from zymotic diseases was 143, being 61 under the average for the corresponding period of last year, and 119 below the average for the second

quarter of the ten years 1881–90. Continued fever caused 24 deaths, of which 4 were due to typhus fever; measles, 3; influenza, 5; whooping-cough, 43; and diphtheria, 2. There was not a single death during the quarter from scarlet fever or small-pox. The mortality from diseases of the respiratory system, exclusive of phthisis, amounted to 390, a number much below the average.

The Lord-Lieutenant in Council has authorised the expenditure of £1700 on the Kilkenny Lunatic Asylum, £1000 on the Mullingar Asylum, £2500 on the Killarney Asylum, and £800 on the Richmond Lunatic Asylum.

By the recent report of the Local Government Board it appears that the medical officers of workhouses and dispensaries who were in the receipt of retiring allowances numbered eighty-four. This list does not include apothecaries.

Mr. T. J. Stafford, medical inspector of the Local Government Board for Ulster, has been selected to succeed Mr. Hamilton Burke in charge of the metropolitan district at Dublin. He will be replaced in Belfast by Dr. C. J. Clibborn, late medical officer of the Kiltegan (co. Wicklow) dispensary district, who is the newly appointed inspector.

Aug. 11th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Koch's Institute for Infectious Diseases.

PROFESSOR KOCH'S Institute for Infectious Diseases was opened on Tuesday. The head of the clinical department is Professor Brieger, that of the scientific department the well-known hygienist Dr. Pfeiffer. Drs. Petruschky, Frosch, and Behring are among the assistants. The attendants in the clinical department are "Maerkische Schwestern" (Brandenburg Sisters), who devote themselves solely to the care of the sick without any special religious bias. Professor Brieger is well known as one of the chief investigators of ptomaine. Pfeiffer is Professor Carl Fraenkel's collaborator in the publication of the "Microphotographic Atlas of Bacteriology." He has been Koch's assistant in the Hygienic Institute for four years past, and is a private lecturer on bacteriology in Berlin University. Petruschky has specially studied the assimilation products of bacteria and the cause of the immunity of the frog from anthrax. Frosch has been one of Koch's assistants in the Hygienic Institute for some time past, and is one of the most promising of the younger bacteriologists. Behring is best known for his investigations of the action of antiseptics, and especially for his publication last year, conjointly with the Japanese bacteriologist Kitasato, on immunity from diphtheria and tetanus.

The second and fifth volume of the discussions of the tenth International Medical Congress have just appeared.

The Congress of Austrian Alienists will be held at Graz on Oct. 5th and 6th.

Professor von Helmholtz will spend his seventieth birthday, the 31st inst., at Madonna di Campiglio, in the Upper Engadine.

Friedrich Merkal has written a biography of the famous anatomist, Jacob Henle.

A new biological institute is about to be erected in Heligoland.

Berlin, Aug. 18th.

Obituary.

JAMES HENRY BENNET, M.D.

AN eminent member of the medical profession, who was formerly associated in the editorial conduct of THE LANCET, has recently passed from the scene of his useful labours. Dr. James Henry Bennet was born on March 26th, 1816, in Manchester. He was the son of a well-known cloth manufacturer, who had made several important discoveries in connexion with that industry, and who was the first to obtain a patent for admixing cotton and woollen fabric in the same tissue. His father was also the inventor of the well-known fabric called by him "corduroy." He died early, leaving a young wife and family but scantily provided for. His widow, at the instance of one of her husband's friends, removed to Paris and placed her son Henry in a college (St. Louis), where he was educated, and, as he afterwards wrote, "duly crammed with Latin and Greek," to his intense satisfaction throughout life. Having decided on the study of medicine, after a brief attendance at Guy's Hospital, he was apprenticed to his uncle, Mr. Osmond Taberrer of Derbyshire, "a clever, well-informed country surgeon, brought up in the practice from early youth by an elder brother, to whom he had succeeded." Under the guidance of his uncle, of whom his admiration was intense, he acquired a practical knowledge of dispensers' work and of the minor operations which were continually coming under the notice of a country surgeon. Being an ardent and enthusiastic student, he soon settled down in pursuit of that knowledge of modern medicine which even his intimate acquaintance with Sophocles, Euripides, and Xenophon, or with Virgil, Horace, and Tacitus, could not afford him. If ever the system of apprenticeship possessed an eloquent champion, it was Dr. Henry Bennet. The memory of his uncle's success was ever present with him. To quote Dr. Bennet's own words: "Every case of disease that I saw, medical or surgical, made such a vivid impression on me that it has remained in my mind at the age of seventy, ever since, as the type of that disease, with its social surroundings—the farmhouse, the cottage, the parsonage, the school infirmary—in which it was seen and studied, and which have proved much more tenacious than those subsequently received in hospital wards." On returning to France, at the age of twenty, young Bennet remained for seven years, competing for and obtaining everything that could be obtained by competition. He settled in London, became a Member of the Royal College of Physicians, 1844, and Obstetric Physician to the Royal Free Hospital. His works on Uterine and Ovarian Inflammation, which passed through several editions in England, America, and on the Continent, brought him permanently before the medical and general public. In 1859 chest mischief unfortunately manifested itself, compelling him to take refuge in the French Riviera, at Mentone, where his well-known name, and his work on the Mediterranean, its shores and islands, served as a centre of attraction to health seekers. He wrote largely on the treatment of pulmonary consumption and hygiene, and was an earnest advocate of the benefit of living day and night in fresh air. Other works of his are "Nutrition in Health and Disease," "Memoirs on Gynæcology, Thoracic Pathology, and Climatology," &c. He was a frequent contributor to the *Gardener's Chronicle*. His beautiful garden at Grimaldi was well known to visitors to Mentone.

THE SERVICES.

ARMY MEDICAL STAFF.—Brigade Surgeon Wm. Graves to be Deputy Surgeon-General (ranking as Colonel), vice G. E. Will, deceased (dated Aug. 1st, 1891); Brigade Surgeon Francis Howard, M.D., from half-pay, to be Brigade Surgeon, vice S. K. Ray, retired (dated July 31st, 1891); Surgeon-Major (ranking as Lieutenant-Colonel) Richard Hugh Carew, D S O., to be Brigade Surgeon, vice W. Graves (dated Aug. 1st, 1891); Surgeon-Major Henry Waghorn retires on temporary half-pay on account of ill-health (dated Aug. 19th, 1891).

Surgeon P. H. Whiston of the Medical Staff, who has been nominated for the post of attached Surgeon to the Coldstream Guards, has joined the 2nd Battalion for duty.

NAVAL MEDICAL SERVICE.—The following appointments have been made at the Admiralty:—Fleet Surgeons: Gerard J. Irvine to the *Britannia*, William D. Longfield to the *Vivid*, and T. Connolly to the *Northampton* (dated Aug. 23rd, 1891); Staff Surgeon Michael Ronan to the *Serapis*, and Alexander J. J. Johnston to the *Active*.—Surgeons: James H. Beattie to Chatham Hospital, George H. H. Symonds, M.B., to the *Northampton* (dated Aug. 14th, 1891); William H. O'Meara to the *Thrush*, and James W. Underhill M.B., to the *Alexandra* (both dated Aug. 25th, 1891).

VOLUNTEER CORPS.—*Rifle:* 4th (Cambridge University) Volunteer Battalion, the Suffolk Regiment: Jos. Griffiths, M.D., to be Acting Surgeon (dated Aug. 15th, 1891).—1st Surrey (South London): Surgeon-Major (ranking as Lieutenant-Colonel) W. R. Brunton resigns his commission; also is permitted to retain his rank, and to continue to wear the uniform of the Corps on his retirement (dated Aug. 15th, 1891).

Medical News.

UNIVERSITY OF LONDON. — At the Intermediate Examination in Medicine for Honours held in July, the following candidates were successful in the subjects indicated:

Anatomy.—First Class: John Stephenson, B.Sc. (Exhibition and Gold Medal), Owens College; J. Stansfield Collier, B.Sc. (Gold Medal), St. Mary's Hospital; John Stretton Sloane, B.Sc., St. Bartholomew's Hospital.—*Second Class:* Harold Bertie Dickinson, University College, Liverpool; Alfred Byers, B.Sc., Owens College; Sidney W. F. Richardson, St. Thomas's Hospital.—*Third Class:* Thos. Tendron Jeans, Owens College and Manchester Royal Infirmary; T. Bernard Stedman, University College; Alfred Ernest Russell, St. Thomas's Hospital; Ernest Henry Houlton, Yorkshire College.

Physiology and Histology.—First Class: John Le Mare Bunch, B.Sc. (Exhibition and Gold Medal), University College; John Stephenson (Gold Medal), Owens College; †Walter d'Este Emery, Queen's College, Birmingham, and †John Stretton Sloane, St. Bartholomew's Hospital (equal).—*Second Class:* Harold Bertie Dickinson, University College, Liverpool; Robert Arthur Young, Middlesex Hospital; James Stansfield Collier, St. Mary's Hospital; Alfred Byers, Owens College, and Arthur Henry Leete, Guy's Hospital (equal).—*Third Class:* Frederick John Fielder, King's College; Sidney Wm. F. Richardson, St. Thomas's Hospital; Wm. Robert Bryett, B.A., King's College, and Arthur Maurice Collcutt, Cambridge University (equal); Arthur Edward Wilson, St. Mary's Hospital.

Organic Chemistry.—First Class: John Alexander Howard (Exhibition and Gold Medal), Guy's Hospital; *Elizabeth J. Moffett, B.Sc., London School of Medicine for Women; Harry Sinigar, Queen's College, Birmingham. — *Second Class:* James Stansfield Collier, St. Mary's Hospital.

Materia Medica and Pharmaceutical Chemistry. — First Class: George Hebb Cowen (Exhibition and Gold Medal), London Hospital; Walter d'Este Emery, Queen's College, Birmingham.—*Second Class:* Robert Arthur Young, Middlesex Hospital; L. Ernest V. Every-Clayton, Guy's Hospital.—*Third Class:* John Alexander Howard, Guy's Hospital; James Stansfield Collier, St. Mary's Hospital; John Stretton Sloane and Kenneth Rogers, St. Bartholomew's Hospital; Thomas Bernard Stedman, University College.

* Obtained the number of marks qualifying for the Exhibition.
† Obtained the number of marks qualifying for a Gold Medal.

At the Preliminary Scientific (M.B.) Examination held in July the following candidates passed:—

Entire Examination.

First Division.—C. W. Alford, Epsom Coll.; W. B. Anderton, Univ. School, Southport, and Owens Coll.; S. B. Atkinson, St. Barth. Hosp. and private study; F. A. Bainbridge, The Leys, Camb.; H. L. Barnard, private study and Univ. Tutorial Coll.; W. R. Battye, Univ. Coll., Bristol, Clifton Laboratory, and private tuition; R. H. Birtwell, B.A., Owens Coll.; J. H. Bodman, Univ. Coll., Bristol, and private study; J. A. O. Briggs, Univ. Coll., Nottingham, and Queen Elizabeth's School, Mansfield; T. R. H. Bucknall, Mason Coll.; T. Chave, St. Barth. Hosp.; M. W. Coleman, St. Barth. Hosp.; H. H. Greenwood, Yorkshire Coll.; W. S. Henderson, Univ. Coll., Liverpool; A. C. Hill, St. Barth. Hosp.; G. H. J. Hooper, private study and Charing-cross Hosp.; T. J. Horder, St. Barth. Hosp.; S. P. Huggins, St. Barth. Hosp. and Birkbeck Inst.; J. C. H. Leicester, Univ. Coll. and private tuition and study; J. P. Maxwell, St. Barth. Hosp. and Birkbeck Inst.; A. A. Montague, St. Thomas's Hosp.; S. D. Scott, St. Barth., Birkbeck Inst., and Mercer's School; A. J. Smith, Westminster and Middlesex Hosps.; Florence Ada Stoney, B. Coll. of Sci., Dublin, and private study; H. Sugden, St. Mary's Hosp.; F. G. Thomson, Epsom Coll.; L. Tong, Owens Coll.; W. B. L. Trotter, Univ. Coll.; Ethel May Vaughan, Univ. Coll.; W. Wilkins, Epsom Coll.; H. Williamson, The Leys and St. John's Coll., Camb.

Second Division.—A. Ali, St. Barth. Hosp.; R. H. Ashwin, Dulwich Coll.; F. H. Atkinson, Epsom Coll.; G. F. Bergin, Univ. Coll., Bristol, and private study; S. L. Box, St. Barth. Hosp.; Harriet M. Castledine, private study; F. C. W. Clifford, King's Coll.; A. S. Cobbledick, Univ. Coll., Bristol; D. H. F. Cowin, Univ. Coll.; H. P. Ferraby, Guy's Hosp.; E. J. Fox, Owens Coll.; L. F. Giblin, Univ. Coll.; F. W. Goldie, Univ. Coll.; O. B. Goldschmidt, Owens Coll.; H. A. Good, King's Coll.; C. B. Goring, Univ. Coll.; S. Gross, Yorkshire Coll.; P. H. Hayleit, Guy's Hosp.; A. Heath, Univ. Coll, Nottingham; A. Holroyd, Yorkshire Coll.; J. Howell, Guy's Hosp.; H. Innes, Univ. Coll.; P. Levick, Epsom Coll.; Rachel E. W. Mackenzie, Heriot Watt Coll. and Coll. Surg., Edin.; A. J. Martineau, Univ. Coll. and private study; J. H. Murray, Epsom Coll.; G. H. Pethybridge, Univ. Coll., Aberystwith; G. J. E. Pitman, Clifton and Univ. Coll.; H. S. Pyne, private study and tuition; J. W. F. Rait, Univ. Coll. and private study; A. C. Rose, Mason Coll.; J. D. Russell, Univ. Coll., Birkbeck Inst., and City of London School; J. M. Schaub, King's Coll.; W. B. Stevenson, St. Mary's Hosp.; D. B. Todd, Guy's Hosp.; C. E. Trimble, Univ. Coll.; A. B. Tucker, St. Barth. Hosp.; E. F. G. Tucker, London Hosp.; F. T. Waldron, London Hosp.; S. R. Walker, Epsom Coll.; A. E. Walter, Middlesex Hosp.; W. Wrangham, St. Barth. Hosp.

The following Honours candidates were recommended for a pass:—

G. H. Lansdown, King's Coll.; J. F. Porter, Yorkshire Coll.; E. Thomas, Univ. Coll., Aberystwith, and private study.

UNIVERSITY OF GLASGOW. — The following is the list of those on whom Medical Degrees were conferred by this University at the Graduation ceremony on the 30th ult.:

Doctors of Medicine. — With Honours: Hugh Rhodes, M.B., C.M., England.—*With Commendation:* Gilbert Alex. Bannatyne, M.B., C.M.; Andrew Nicholson M'Gregor, M.B., C.M.; and Andrew Maitland Ramsay, M.B., C.M., all of Scotland. — *Ordinary Degree:* Alexander Charles Farquharson, M.B., C.M.; Hugh Girvan, M.B., C.M.; Robert Lachlan Pinkerton, M.A., M.B., C.M.; William Robertson, M.B., C.M.; James Stevenson, M.B., C.M.; and John Stewart, M.B., C.M., all of Scotland.

Bachelors of Medicine and Masters in Surgery.—Honours: *Hugh Galt and Robt. C. Robertson, M.A., both of Scotland.—*High Commendation:* John William Logie, Daniel Macpherson Taylor, M.A., George Clark Stewart, John M'Gregor, Daniel M'Kenzie, Niel Campbell, and John Gilmour, all of Scotland.—*Commendation:* Robert Wm. Nairn, Brownlow Riddell, John Frew, James Todd, David Smith, Wm. James M'Kendrick, B.Sc., and John Yuill, all of Scotland; Robert M'Ghie and George Mervyn Sydenham, England.—*Ordinary Degrees:* James Aitken, William Anderson, John Fulton Barr, B.Sc., John Adam Boyd, Alexander Campbell, David Christie, Samuel Cockburn, David Coutts, John Alex. Creighton, William Crichton, Hugh Colligan Donald, Wm. Bertram Ochiltree Ferguson, David Wyllie Girvan, Andrew Goldie, John Angus Green, Richard Hamilton, Robert Home Henderson, Anthony Inglis, Robert James, Robert Robertson Kilpatrick, Peter Alexander Laird, Chas. Lavery, Matthew Lochhead, B.Sc., Robert Mortimer Malcolm, James Marr, Thomas Milbourne Martin, William Mason, John Wilson Mathie, John Miller, Robert Walker Moir, David Muir, John Kerr Muir, William Murray, Dugald Macdougall, Donald Neil Macfarlane, Neil Macintyre, Jas. Henderson Naismith, Gilbert Park, Hugh Hamilton Park, William Park (Beith), Robert Alexander Paton, Andrew Robertson, Archibald George Sanders, Arthur Thomas Scott, M.A., Robert Sharp, Robert Stobo, Charles Symington, Lewis Dunbar Temple, Ebenezer Turner, Wm. Thompson Merry Wallace, David Watson, William Watson, James Laurie White, Martin Whyte, James Allan Wilson, and Robert Wilson, all of Scotland; James Gordon Bain, Herbert Du Cane, William Doyle, and Alex. Lewis M'Leod, M.A., all of England; Peter Otho Watkin Browne, John David, John Harris Jones, and David Lloyd, all of Wales; Yousuf Hamis, Syria; Ernest Louis Marsh, Ireland; Chas. Hugh M'Ilraith, M.A., Holland.

* Mr. Galt gains the Brunton Memorial Prize of £10, awarded to the most distinguished graduate in Medicine of the year.

VACCINATION GRANTS. — Mr. T. H. Tidswell, M.R.C.S., L.S.A., of Morecambe, has received an award for successful vaccination (sixth time) —Mr. Gornall, of Warrington, has also received a grant for successful vaccination.

PRESENTATION.—Mr. E. A. Applebee has been presented with a solid silver tea and coffee service and an illuminated address by his friends and patients at Great Coggeshall, Essex, on his leaving that town.

LITERARY INTELLIGENCE.—Messrs. Swan Sonnenschein and Co. announce the near issue of a new edition of Mr. Alfred Havilan1's book, entitled "The Geographical Distribution of Disease in England and Wales," which title, however, will be altered to "The Geographical Distribution of Diseases in, and the Local Climates of, the British Isles." The work will be issued in parts, each part being complete in itself, and the sources of the facts dealt with will be the decennial reports 1851–60 and 1861–70 of the late Dr. Farr, and published by Major Graham when Registrar-General. The first part will appear early in October next.

PSYCHOLOGICAL MEDICINE.—The following is a list of gentlemen who have passed the examination for the certificate of efficiency in Psychological Medicine, entitling them to append M.P.C. to their names:—R. O. Adamson, C. Hubert Bond, M. M. Bowlan, W. J. Carmichael, J. H. Collier, John J. Cowan, Fredk. S. Genney, A. B. Giles, F. B. Graham, J. W. Grant, Edward M. Griffiths, Claude B. Ker, R. Murray Leslie, John Levingstone, David Macdonald, Charles Mitchell, W. A. Parker, James Rust, Geo. Skeen, and D. P. Young.

BEQUESTS AND DONATIONS TO HOSPITALS.—By the will of the late Mrs. Jane Rogers £1000 is bequeathed to Owens College to enlarge the Henry Rogers Scholarship, and £600 to the Cancer Hospital, Owens College —The Merchant Taylors' Livery Company has voted £31 10s. to the West London Hospital, Hammersmith.—The Royal Mineral Water Hospital, Bath, has received a donation of £1000 from a gentleman in Essex.—The late Mr. Edwin H. Lawrence bequeathed £50 each to the London Hospital, the Royal Free Hospital, St. George's Hospital, and University College Hospital.—The late Rev. Theophilus S. Echalaz left by his will £1000 each to the Westminster Hospital and the Middlesex Hospital, and £500 each to Charing-cross Hospital, St. Mary's Hospital, King's College Hospital, the London Fever Hospital, the National Hospital for the Paralysed and Epileptic, the London Hospital, the Surgical Aid Society, the Free Cancer Hospital (Brompton), the Royal Free Hospital, the Metropolitan Hospital, the Royal London Ophthalmic Hospital, the Hospital for Consumption and Diseases of the

Chest, the Royal Hospital for Diseases of the Chest, the Samaritan Free Hospital for Women and Children, University College or North London Hospital, the Royal Medical Benevolent College (Soho-square), and the Margate Sea-bathing Infirmary, all free of legacy duty.—Mr. Henry Arthur Brassey, late of Preston Hall, Ashford, Kent, bequeathed to the Fever Hospital £1000; to the Hospital for Sick Children, St. George's Hospital, the British Lying-in Hospital, the Lock Hospital, the Royal National Hospital for Consumption, Ventnor, and the Hospital for Consumption, Brompton, £500 each; to the West Kent General Hospital £1000; and to the Kent County Ophthalmic Hospital, the Central London Hospital for Diseases of the Throat and Ear, and the Metropolitan Convalescent Institution, Walton-on-Thames, £500 each.—Mrs. Thomas of Cardiff has given £1000 towards the building of another wing to the Cardiff Infirmary.—The Drapers' Livery Company has made a further grant of 30 guineas to the National Hospital for Consumption, Ventnor.—Miss Mary Ann Cape, late of Eden-mount, Stanwix, Carlisle, bequeathed £100 each to the Carlisle Infirmary and the Carlisle Home for Incurables.—Dr. James G. Beaney, late of Melbourne, bequeathed £1000 to St. Thomas's Hospital, to provide "Beaney Scholarships for Surgery"; a scholarship of an equal value, to be known as the "Beaney Scholarship for Materia Medica," is to be founded at Guy's Hospital; also £1000 to the British Medical Benevolent Fund, and £100 to the Canterbury Dispensary.

METROPOLITAN ASYLUMS BOARD.

Return of Patients remaining in the several Fever Hospitals of the Board at Midnight on August 18th, 1891.

Hospital.	Beds occupied.						Total accommodation.
	Scarlet fever.	Diphtheria.	Typhus fever.	Enteric fever.	Other diseases.	Total.	
Eastern Hospital	155	65	1	65	..	286	442
North-Western Hospital	133	33	..	27	1	194	443
Western ,,	123	21	..	7	1	152	224
South-Western ,,	145	16	..	13	1	175	340
South-Eastern ,,	184	10	2	12	1	209	462
Northern ,,	185	23	..	7	..	215	480
Totals	925	168	3	131	4	1231	2391

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

ALEXANDER, JOHN, M.D. Durh., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer of Health for the County of Caithness.

ASHDOWN, G. W. W., M.B., C.M. Edin., M.R.C.S., has been appointed Medical Officer for the Didmarton Sanitary District of the Tetbury Union.

BATELY, JOHN, M.D. Durh., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Belton Sanitary District of the Mutford and Loth ingland Incorporation.

BOND, F. F., M.D., C M. Edin., D.P.H. Eng., has been reappointed Medical Officer of ealth for Rastrick.

BRITTON, THOS., M.D dSt. And., M.R.C.S., has been reappointed Medical Officer of Health for Sheff.

CABLE, G. H., M.R.C.S., has been appointed, *pro tem.*, Medical Officer for the West Greenwich Sanitary District, vice Sturton, resigned.

CARROLL, JOSEPH, M. B., C.M. Glasg., has been reappointed Medical Officer of Health for Ilkeston, Derbyshire.

DEANESLEY, E., M.D Lond., F.R.C.S. Eng., has been appointed House Surgeon to the W olverhampton and Staffordshire General Hospital.

GORNALL, JOHN GUEST, M.R.C.S., L.R.C.P., B.A. Cantab., has been appointed Assistant House Surgeon to the Stanley Hospital, Liverpool.

GREENE, WILLIAM, R.C.P., L.R.C.S. Irel., has been appointed Medical Officer for the Clontarf District of the North Dublin Union.

HAMPER, C. NORMAN, M.B., C.M. Edin., has been appointed House Surgeon to the Central London Ophthalmic Hospital, vice J. Cecil Tosswill.

HOSEGOOD, S., M.R.C.S., has been reappointed Medical Officer of Health for the Swinton and Pendlebury Urban Sanitary Districts.

HUGHES, J. M., M.B., C.M. Edin., has been appointed Medical Officer of Health for the Ruthin Rural Sanitary District.

HYDE, GEO. E., L.R.C.P. Lond., M.R.C.S., has been reappointed Senior Surgeon to the Worcester Infirmary.

KINGSFORD, A. B., L.R.C.P. Lond., M.R.C.S., D.P.H. Camb., has been appointed Junior Assistant Medical Superintendent at the Infirmary, Parish of St. Pancras.

LOWNDS, C. J., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer of Health for the Kirkburton Sanitary District, Huddersfield.

MACKLIN, THOMAS T., M.B., L.F.P.S Glasg., D.P.H. Camb., has been appointed Medical Officer of Health for the Scilly Islands and the Port.

MITCHELL, W. G., M.B., C.M. Edin., has been reappointed Parochial Medical Officer of Health for the Burgh of Ballater.

NORRIS, F. L., M.B., C.M. Glasg., has been appointed Assistant Medical Officer to the Shoreditch Infirmary.

PRICHARD, ROBERT D., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Surgeon to the Glyn Gwilym Colliery and District Surgeon to Neath Merthyr Colliery.

RAINSFORD, FRED. EDWARD, B.A., L.R.C.P., has been appointed Second Assistant Medical Officer to the Bristol City Asylum, Stapleton.

RANDALL, E. B., M.D. Lond., M.R.C.S., L.R.C.P., has been appointed House Physician to the Wolverhampton and Staffordshire General Hospital.

RUSHER, JAS. G., M.R.C.S., has been reappointed Medical Officer for the Grafton, Flyford, and Upton Snodsbury Sanitary Districts of the Pershore Union.

RYAN, W. H., L.K.Q.C.P., L.R.C.S. Irel., has been appointed Medical Officer for the Workhouse and Milton Sanitary District of the Hardingstone Union, vice Terry, resigned.

SCATCHARD, WALTER, M.R.C.S., has been reappointed Medical Officer for the Boughton Sanitary District of the Faversham Union.

SOMERVILLE, THOS. A., L.R.C.P. Edin., M.R.C.S., has been reappointed Medical Officer of Health for the Winslow Urban Sanitary District.

THOMAS, A. W., L.R.C.P., L.R.C.S. Edin., has been reappointed Medical Officer of Health for the Swaffham Urban Sanitary District.

WATT, J. P., M.B., C.M. Edin., has been appointed Chief District Medical Officer for Deeside.

WILLIAMS, J. H., M.D., M.B., C.M. Edin., has been reappointed Medical Officer of Health for the Borough of Flint.

WINTER, W. H. T., M.R.C.S., L.K.Q.C.P. Irel. (formerly House Surgeon), has been appointed Surgeon to the Wolverhampton and Staffordshire General Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement.

CITY DISPENSARY, 46, Watling-street, E.C.—Surgeon.

CITY ASYLUM, Birmingham.—Resident Clinical Assistant. No salary. Board, lodging, and washing provided.

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry.—Assistant to the House Surgeon for six months. Honorarium £15, with board, residence, washing, and attendance (exclusive of beer, wines, and spirits).

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry.—House Surgeon. Salary £100 per annum, with board (exclusive of beer, wine, and spirits), lodging, and attendance.

COUNTY AND COUNTY OF THE BOROUGH OF CARMARTHEN INFIRMARY.—House Surgeon Salary £100 per annum, with board, lodging, and laundry. (Apply to the Secretary, 11, Morley-street, Carmarthen.)

GENERAL INFIRMARY, Leeds.—House Physician. Board, lodging, and washing provided.

INDIGO PLANTERS OF SARUN, BENGAL.—A Doctor, qualified. Funds now subscribed amount approximately to Rs. 7000 per annum, and other practice amounting to an additional Rs. 3000 per annum will also probably be available. (Apply in the first instance to Messrs. Grindlay & Co., 55, Parliament-street, London.)

INFIRMARY, Bolton.—Locum Tenens for one month in large hospital, to take House Surgeon's duty. (Apply to House Surgeon, Infirmary, Bolton, Lancashire.)

LEITH HOSPITAL.—House Physician for six months. Salary at the rate of £50 a year, with board in the hospital.

LEITH HOSPITAL.—Surgeon for six months. Salary at the rate of £50 a year, with board in the hospital.

LEITH HOSPITAL.—House Surgeon for six months. Salary at the rate of £50 a year, with board in the hospital.

MUNICIPAL COMMISSIONERS OF SINGAPORE.—Health Officer, and to act as Medical Officer to the staff and employés of the Municipality. Salary Rs. 300 per mensem, with Rs. 40 extra allowance for two horses. Appointment for three years, with option of renewal; passage paid out and home. (Apply to Dr. W. Gilmore Ellis, of Singapore (now in England), at St. Bartholomew's Hospital, London, up to August 31st, or to Mr. C. C. Lindsay, 167, St. Vincent-street, Glasgow.)

MALLING UNION.—Medical Officer and Public Vaccinator for the Third (Wrotham) District of the Union. Salary £100 per annum, exclusive of medical extras and vaccination fees. (Apply to the Clerk to the Guardians, West Malling.)

PAROCHIAL BOARD OF WALLS, SANDNESS, PAPASTOUR, AND FOULA, SHETLAND.—Medical Officer and Public Vaccinator. Salary £35, exclusive of medicine.

PARISH OF ST. MATTHEW, Bethnal-green.—Assistant Medical Officer for the Workhouse Infirmary. Salary £100 per annum, rising £25 annually to a maximum of £150, with board and residence. (Apply at the Guardians' Offices, Bishop's-road, E.)

PARISH OF ST. GEORGE-IN-THE-EAST.—Medical Officer for the Infirmary and Workhouse. Salary £350 per annum (subject to the approval of the Local Government Board), with unfurnished house, gas, coal, and water. (Apply to the Clerk, Offices, Raine-street, Old Gravel-lane, E.)

POPLAR HOSPITAL FOR ACCIDENTS, East India-road, Poplar, E.—Assistant House Surgeon. Salary £50 per annum, with board and lodgings. (Apply to Lieut.-Colonel F. Borthwick, Boscombe Spa, Bournemouth.)

ROYAL PORTSMOUTH, PORTSEA, AND GOSPORT HOSPITAL.—Assistant House Surgeon for one year. Board and residence provided.

SALFORD ROYAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board and residence.

WEST DERBY UNION.—Resident Assistant Medical Officer for the Workhouse at Walton-on-the-Hill. Salary £100 per annum, and first-class rations and apartments. (Apply to the Union Clerk, Broughton-terrace, West Derby-road, Liverpool.)

WORCESTER AMALGAMATED FRIENDLY SOCIETIES' MEDICAL ASSOCIATION.—Assistant Medical Officer. Salary (without residence) £140 per annum, with a portion of midwifery fees; also £20 per annum for cab hire. (Apply to Mr. Gibson, Easy-row, Worcester.)

Births, Marriages, and Deaths.

BIRTHS.

ALEXANDER.—On Aug. 15th, at Trinity-square, S.E., the wife of John Alexander, M.R.C.S., of a daughter.

ALLINSON.—On Aug. 12th, at Spanish-place, Manchester-square, W., the wife of Dr. T. R. Allinson, of a son.

BRANFOOT.—On July 18th, at Madras, the wife of Surgeon-Major A. M. Branfoot, Indian Medical Service, of a son.

GABB.—On Aug. 16th, at Copthorne, Guildford, the wife of J. Percy A. Gabb, M.D. Lond., of a son.

MARSDEN.—On Aug. 10th, at Burscough-street, Ormskirk, the wife of Herbert Harrison Marsden, M.R.C.S., of a son.

NICOLL.—On Aug. 16th, at Saintbury, Upper Clapton, the wife of T. Vere Nicoll, M.R.C.S., L.R.C.P. Lond., prematurely of a son, stillborn.

SAUNDERS.—On Aug 19th, at 17, Barkston-gardens, South Kensington, the wife of Frederick W. Saunders, M.B., B.C. Cantab., M.R.C.S., of a daughter.

SEYMOUR.—On Aug. 7th, at 103, Sandgate-road, Folkestone, the wife (*née* Edith Ellen Ward) of George Seymour, of a son.

SPENCER.—On Aug. 13th, at Albion-road, Stoke Newington, the wife of E. R. Spencer, L.R.C.P., M.R.C.S., of a daughter.

SUFFERN.—On Aug. 13th, at Rubery Hill Asylum, the wife of A. C. Suffern, M.D., Medical Superintendent, of a son.

WILSON.—On Aug. 15th, at Denham House, Goldhawk-road, London, W., the wife of James Wilson, M.D., of a daughter.

MARRIAGES.

ARCHER—LA TOUCHE.—On Aug. 12th, at Plumstall Church, near Chester, Arthur Montfort Archer, B.A., M.D., of Foregate-street, Chester, youngest son of the late Rev. Arthur Ellis Archer, Rector of Aghadoe, Killarney, to Frances Cecilia (Sheiah), second daughter of Major La Touche, of Oaklea, Chester.

EVILL, — MURRAY.—On Aug. 5th, at Ballarat, Frederick Claude M.R.C.S., L.R.C.P., fourth son of William Evill, Esq., J.P., of Collingham-gardens, South Kensington, to Sybella Strathearn, fifth daughter of the late Charles Murray, Esq., of Brentwood House, Lee-park.

WILKIN—HARMS.—On Aug. 13th, at St. Mary's, Kilburn, Henry C. Wilkin, L.R.C.P. and M.R.C.S., of Palace-gardens-terrace, W., to Catherine Elizabeth, younger daughter of the late Henry Harms, Esq., of Pole-hill Lodge, Hillingdon, Middlesex.

DEATHS.

BUDD.—On Aug. 17th, at North Tawton, Devon, Christian Budd, M.B., J.P., in his 79th year.

IVEY.—On Aug. 12th, at Norfolk-terrace, Bayswater, William F. Torcato Ivey, A.M., M.R.C.S., Deputy Inspector-General A.M.D., late Medical Officer Tower of London, aged 71.

JONES.—On Aug. 11th, suddenly, Dr. George Jones, of Framlingham, Suffolk, younger son of the late Rev. Wm. Taylor Jones, of Sydenham College, Sydenham, S.E., aged 53.

STEVENSON.—On Aug. 17th, at 57, Hamilton-square, Birkenhead, John Frederick Stevenson, M.D., aged 66.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Aug. 20th, 1891.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
Aug. 14	30·09	W.	63	62	126	79	62	..	Cloudy
,, 15	29·92	W.	67	62	120	75	61	..	Cloudy
,, 16	30·02	W.	62	57	109	73	54	·03	Cloudy
,, 17	29·94	W.	63	57	112	70	54	..	Hazy
,, 18	29·63	S.W.	62	60	87	71	60	·20	Cloudy
,, 19	29·68	W.	61	59	112	70	57	·10	Raining
,, 20	29·75	N.W.	60	55	116	70	52	·37	Bright

Medical Diary for the ensuing Week.

Monday, August 24.

ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1.30 P.M., and on Tuesday, Wednesday, Friday, and Saturday at the same hour.

ROYAL LONDON OPHTHALMIC HOSPITAL, MOORFIELDS.—Operations daily at 10 A.M.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1.30 P.M., and each day at the same hour.

CHELSEA HOSPITAL FOR WOMEN.—Operations, 2.30 P.M.; Thursday, 2.30.

HOSPITAL FOR WOMEN, SOHO-SQUARE.—Operations, 2 P.M., and on Thursday at the same hour.

METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.

ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.

CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M., and each day in the week at the same hour.

UNIVERSITY COLLEGE HOSPITAL.—Ear and Throat Department, 9 A.M.; Thursday, 9 A.M.

Tuesday, August 25.

KING'S COLLEGE HOSPITAL.—Operations, 2 P.M.; Fridays and Saturdays at the same hour.

GUY'S HOSPITAL.—Operations, 1.30 P.M., and on Friday at same hour. Ophthalmic Operations on Monday at 1.30 and Thursday at 2 P.M.

ST. THOMAS'S HOSPITAL.—Ophthalmic operations, 4 P.M.; Friday, 2 P.M.

ST. MARK'S HOSPITAL.—Operations, 2 P.M.

CANCER HOSPITAL, BROMPTON.—Operations, 2 P.M.; Saturday, 2 P.M.

WESTMINSTER HOSPITAL.—Operations, 2 P.M.

WEST LONDON HOSPITAL.—Operations, 2.30 P.M.

ST. MARY'S HOSPITAL.—Operations, 1.30 P.M. Consultations, Monday, 2.30 P.M. Skin Department, Monday and Thursday, 9.30 A.M. Throat Department, Tuesdays and Fridays, 1.30 P.M. Electro-therapeutics, same day, 2 P.M.

Wednesday, August 26.

NATIONAL ORTHOPÆDIC HOSPITAL.—Operations, 10 A.M.

MIDDLESEX HOSPITAL.—Operations, 1 P.M. Operations by the Obstetric Physicians on Thursdays at 2 P.M.

CHARING-CROSS HOSPITAL.—Operations, 3 P.M., and on Thursday and Friday at the same hour.

ST. THOMAS'S HOSPITAL.—Operations, 1.30 P.M.; Saturday, same hour.

LONDON HOSPITAL.—Operations, 2 P.M. Thursday & Saturday, same hour.

ST. PETER'S HOSPITAL, COVENT-GARDEN.—Operations, 2 P.M.

SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN.—Operations 2.30 P.M.

GREAT NORTHERN CENTRAL HOSPITAL.—Operations, 2 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 1.30 P.M.; Skin Department, 1.45 P.M.; Saturday, 9.15 A.M.

ROYAL FREE HOSPITAL.—Operations, 2 P.M., and on Saturday.

CHILDREN'S HOSPITAL, GREAT ORMOND-STREET.—Operations, 9.30 A.M. Surgical Visits on Wednesday and Saturday at 9.15 A.M.

Thursday, August 27.

ST. GEORGE'S HOSPITAL.—Operations, 1 P.M. Surgical Consultations, Wednesday, 1.30 P.M. Ophthalmic Operations, Friday, 1.30 P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; Ear and Throat Department, 9 A.M.

Friday, August 28.

ROYAL SOUTH LONDON OPHTHALMIC HOSPITAL.—Operations, 2 P.M.

Saturday, August 29.

MIDDLESEX HOSPITAL.—Operations. P.M.

UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M.; and Skin Department, 9.15 A.M.

Notes, Short Comments, & Answers to Correspondents.

It is especially requested, that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

All communications relating to the editorial business of the journal must be addressed "To the Editors."

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *to be addressed "To the Publisher."*

We cannot undertake to return MSS. not used.

THE STUDENTS' NUMBER OF "THE LANCET" will be published on Saturday, September 5th. Those gentlemen, holding official situations connected with institutions of Medicine, Dentistry, or Public Health in the United Kingdom, who have not yet forwarded the necessary information to our Office for publication in that number, are earnestly requested to send it *without the delay of a single post.*

THE LATE M. JULES FRANÇOIS DE NEUFCHATEAU.

IN an interesting article on the "Mineral Waters of the Pyrenées," published in the *Pictorial World* of Aug. 15th, Miss Helen Murphy refers to the part taken by M. de Neufchateau in making known to the world the merits of the waters of Cauteret and Luchon. He was born in 1808, and died at Biarritz in September last, and is stated to have been "one of the greatest French geologists of modern times."

G. P.—Application should be made to the Directors or Commissioners of Prisons; the appointments are in the hands of the chairman.

O. U. I.—THE LANCET, Oct. 23rd and Dec. 11th, 1880.

MEDICAL ATTENDANCE ON EMERGENCIES.

To the Editors of THE LANCET.

SIRS,—On July 25th I was called to a case of cut-throat in the public road. The man resisted all attempts to examine him there, so I had him removed to the police-station, where I inserted a tube and stayed with him the greater part of the night. In the morning I had him removed to the workhouse (we have no hospital here), where he died. Our police superintendent tells me he has consulted his chief at the county town, who says there is no fund available to pay for my services, as I was not called in by the police. The man broke his leg last year, and I then had a parish order to attend him. Just before his suicide he had brought home about £7 earned in haymaking, which he had squandered on drink. Is there any fund from which the County Council could pay a fee, say £2 2s.? I must mention that I was called at the inquest, and received a guinea for that.

I am, Sirs, yours truly,

Aug. 19th, 1891. MUST GO WHEN SENT FOR.

M.B.—It is difficult to define charges for journeys of general practitioners acting in the capacity of consultants. The practitioner himself is far the best judge of all the circumstances which have to be considered. Perhaps in the first case from ten to fifteen guineas a journey would be a reasonable charge; in the second, twenty guineas. But we advise our correspondent to be guided by his own judgment, formed on a just estimate, first, of the value of his own time and services, and, secondly, of the patient's means.

Mr. Wm. Williams.—1. We noticed in THE LANCET of Feb. 1st, 1890, a very good spirometer, to be obtained of Mr. Tallack, Hatton-garden, London.—2. Yes.

LEAD POISONING BY SHEFFIELD WATER-SUPPLY.

To the Editors of THE LANCET.

SIRS,—The recent favourable notice in THE LANCET anent the above subject and experiments carried out by Dr. Bristowe and his colleagues leaves the impression that the process adopted forms a new discovery in sanitary science as a direct result of the experiments carried out in Sheffield. To this view I most respectfully demur, basing my claim to object on the following facts regarding priority of discovery of the process of neutralising acidity in water-supply by means of chalk, limestone, &c.

Dr. Meymott Tidy, F.C.S., &c., made, I believe, the first public reference to the subject as far back as 1886, by a communication to the Royal Society. In the following year experiments for the purpose named were carried out with the water-supplies of Huddersfield and Keighley, whilst in the year following an extended series were carried out for the Sheffield Water Company by Professors Dewar, Odling, and Tidy, who reported most favourably of the merits of such a process. Later still, in 1890, followed the Sheffield Inquiry *re* lead poisoning, the result being the experiments and final adoption of the process referred to in the current issue of THE LANCET.

As regards priority of discovery of the process, I believe I am entitled to first claim—first, on the ground of actual discovery by experiment in November, 1873; and, secondly, by the fact that in June, 1885, or about ten months previously to Dr. Tidy's communication to the Royal Society, I applied for, and was granted, a patent (No. 7958) for the purification of water. The principal claim made was for the neutralisation of acidity in water by means of chalk, limestone, &c.

I have no desire to depreciate in the least degree the value of the particular form of the process adopted in Sheffield, and will only allude to the central fact of the case, which is that Redmires water by simple contact will take in solution upwards of sixty grains of chalk per gallon. It may, however, prove that 5 per cent. of this amount, which represents the process adopted, may be sufficient to prevent the water corroding lead pipes. But, speaking for myself, and acknowledging the difficulties in the way of progress, I am not satisfied that the result named is or can be accepted as what is desirable or possible in the purification of moorland water-supplies.

I am, Sirs, yours respectfully,

Sheffield, Aug. 6th, 1891. W. H. HILL-HARLAND.

A Foreigner.—Our correspondent should state the source of his degree. This would prevent all complaint of his wishing to appear or represent himself as a registered practitioner with an English qualification. We do not approve the title of "specialist in this disease or the other." What the law recognises is a general practitioner with such-and-such medical qualifications.

A Layman will find in THE LANCET of 1888, vol. ii., page 1214, a review of Huth's book entitled "Marriage of Near Kin," which is perhaps the best authority on the subject.

Student.—Our Students' Number, to be published on Sept. 5th, will contain all the information of the kind desired by our correspondent.

"THE CANARY ISLANDS FOR INVALIDS."

To the Editors of THE LANCET.

SIRS,—Having resided at Teneriffe during a part of the past winter I have read with much interest the letters of Mr. Fernandez and those in reply by Drs. Alfonso and Thurstan. From what I saw there, and from numerous conversations with invalids who were wintering there, I came to the conclusion that Teneriffe justly boasts of one of the most perfect climates in the world for those desiring a dry and genial winter residence. There is both ample and good accommodation now at the port of Oratava, and the sanitary arrangements of the new English hotel are very good, and with the advantage of an abundant supply of good water. I do not believe there is a tenth part of the number of infectious diseases ordinarily found in any English town. In conclusion, I can only say that if I can induce any invalids to go to these islands, I shall only be too glad.

I am, Sirs, yours truly,

Leicester, Aug. 18th, 1891. HENRY MEADOWS, M.B.

Mr. F. Holmes.—An examination is required to be passed in order to gain a certificate to act as an Assistant in compounding and dispensing medicines.

Mr. Wheeler.—We publish abstracts. A full report of papers and discussions will be issued by the Congress.

ERRATA.—In the report of the speech of Dr. Brouardel last week, p. 367, line 18 from top of second column, the word "imitators" should read *initiators*.—In our report of the discussion on Parasites, page 382, line 7 from the bottom of the second column, and again on p. 385, line 20 of first column, for "Pacchiotti" read *Perroncito*. One or two other inaccuracies in the spelling of foreign names in our reports may have escaped correction. The entire avoidance of errors of the kind was almost impossible in the case of a gathering like the Congress which has just closed.

COMMUNICATIONS not noticed in our present number will receive attention in our next.

COMMUNICATIONS, LETTERS, &c., have been received from—Messrs. Allen and Hanburys, London; Mr. Birchall, Liverpool; Messrs. Blondeau et Cie., London; Dr. R. Barnes, Lyss; Dr. Beilby, Bruges; Mr. T. Blair, Leeds; M. Berthier, Paris; Mr. J. B. Browne, London; Mr. E. Clarke, London; Prof. Crookshank, London; Mr. Coulson, South Shields; Dr. C. W. Chapman, London; Prof. Corfield; Messrs. Cole and Son, Long Sutton; Mr. Collingridge, London; Mr. Cocking, Sheffield; Mrs. Campbell, London; Dr. Doyen, Poeima; Messrs. Deacon and Co., London; Mr. A. Duke, Dublin; Surgeon J. D. Day, Dublin; Dr. Ewart, London; Mr. H. E. Earle, London; Dr. Fountain, Bryan, Texas; Mr. Foy, Dublin; Mr. F. R. Fisher, London; Mons. A. Féret, Paris; Mr. Gibson, Worcester; Sir G. M. Humphry, Cambridge; Mr. Hadley, London; Dr. T. Harris, Manchester; Mr. V. Horsley, London; Dr. B. Howard, Siberia; Mr. Hornibrook, London; Mr. A. Haviland; Dr. Harris, Thetford; Dr. F. von Hoffmann; Mr. F. Holmes; Dr. Hambleton; Dr. Harcourt, Guildford; Messrs. Ingram and Royle, London; Sir William Jenner; Mr. Jollye, Alresford; Dr. Kirk, Crieff; Messrs. Kingsbury and Co., London; Messrs. Kite and Co.; Mr. Leckie, London; Dr. Lush, Weymouth; Messrs. Luzac and Co., London; Dr. W. O. Lambert, Sunderland; Dr. Lucas, Bury St. Edmunds; Miss Rose Lyon, London; Dr. Lyon, Houghton-le-Spring; Mr. J. H. Morgan, London; Dr. Hooper May; Mr. Malcolm Morris, London; Dr. More Madden, Dublin; Messrs. Maw, Son, and Thompson, London; Dr. Meadows, Leicester; Messrs. Maclehose and Son, Glasgow; Mr. H. Kent Norris, Devizes; Mr. J. Newton, Liverpool; Messrs. Orridge and Co., London; Mr. Young J. Pentland, Edinburgh; Mr. Perkins, Sacramento; Mr. Perry, King's Lynn; Mr. J. Pearl, London; Mr. Rolls, Weymouth; Dr. J. C. Robertson, Wandsworth; Dr. Roughton, London; Dr. J. Reder, Vienna; Dr. J. Ryley, Yarmouth; Mr. T. O'C. Redmond, Dublin; Dr. Semple, Bury St. Edmunds; Mr. Scott, Freshwater, I.W.; Mr. Shepperson, Potter's Bar; Mr. Seymour, Coventry; Dr. A. Smart, Edinburgh; Dr. Savill, London; Dr. Shuttleworth, Lancaster; Mr. Startin, London; M. U. Somers, Hadfield; Prof. Shepherd, Montreal; Mr. W. D. Spanton, Hanley; Dr. J. M. Smith; Dr. Sonsino; Dr. Sewill; Dr. Steele, Clifton; Mrs. Turner, Finsbury-park; Messrs. Towers, Ellis, and Co., Bayswater; Mr. Taylor, London; Mr. Tallack, London; Mr. S. Turner, Gloucester; Dr. Urquhart, Perth; Mr. Wisken; Dr. McCook Weir; Mr. Wildes, Malling; Dr. F. H. Walmesley; Dr. F. Willcocks, London; Mr. Wright, Edinburgh; Dr. Wright, Matlock; Mr. Williams, Carmarthen; Medico, London; A. B. R., London; H. H.; Physician, London; W. B., London; M.B., London; F. L. P., London; Yorkshire College, Leeds; O. P., London; A Foreigner; *Dietetic Gazette*, New York; Sufferer, London; R. G. B., London; N. H., Cosham; Salford Royal Hospital; O. U. I.; In-door, London.

LETTERS, *each with enclosure*, are also acknowledged from—Mr. Bruce Clarke, London; Mr. Williams, Birkenhead; Messrs. Rowntree and Co., York; Mr. Boyle, London; Mr. Sers, Peckham; Messrs. Ross and Co., Belfast; Miss Costello, Shipston-on-Stour; Mr. Brew, Great Malvern; Mr. Lewis, Swansea; Mr. Tully, Hastings; Messrs. Slinger and Son, York; Mr. Blackwood, Shefford, Beds; Mr. Clark, Melton Mowbray; Mr. Reid, Worthing; Mr. Blatchley; Messrs. Castrell and Son, Cheltenham; Mr. Tyte, Minchinhampton; Messrs. Hewlett and Son, London; Mr. Jackson, Workington; Mr. Dewhurst, Tunbridge Wells; Mr. Hughes, Maesteg; Dr. Matheson; Mr. Williams, Market Drayton; Mr. Wood, Southport; Mr. Martindale, London; Dr. Pike, St. John's, N.F.; Dr. Alderson, Hammersmith; Mr. Challand, Matlock; Dr. Gray, co. Armagh; Dr. Appleton, Oxford; Dr. Hoffmann, Swansea; Mr. Maynard, Oxford; Mr. Waters, Liverpool; Mr. Thomas, Caerphilly; Mr. Wraith, Darwen; Mr. Shepard, Usk; Mr. Johnson, Teignmouth; Mr. Bloomfield, Leamington; Dr. Leonard, Finchley-road; Mr. Helsham, Keyworth; Mr. Plummer, Durham; Dr. Parry, Pontycymmer; Dr. Sharp, Walsall; Messrs. Jones and Son, Woodford Green; Mr. Seymour, Folkestone; Dr. Patrick, Leicester; Mr. H. B. Long, Kelvedon; Mr. Parry, Wellingborough; Dr. Cochrane, Wigtonshire; Dr. Weatherbe, Hessle; Mr. Thin, Edinburgh; Mr. Saunders, London; Mr. Highton, Derby; Dr. Pinder, London; Mr. Blenkarne, Leicester; Mr. Ling, Suffolk; Mrs. Theobald, Leicester; Dr. Guertler, Scarborough; Mr. Blake, Bournemouth; Dr. McGowan, Manchester; Mr. Heywood, Manchester; Scarpa, London; Hall, London; Barker, Lowestoft; F. J., Folkestone; Ilex, London; Beta, London; Lady Superintendent, Newcastle-on-Tyne; Freemason, London; Hansard Publishing Co., London; J. H. F., Tunbridge; Sigma, London; Rock Life Assurance, London; Scapula, London; Hospital for Women and Children, Leeds; M., Liverpool; Stethoscope; Secretary, Devonshire Hospital, Buxton; H. C. W., London; E. B. H., London; Andax, Yorkshire; F.R.C.S.E., London; R. S. W., London; Permanency, London; W. B., London; H. W., Bradford; Cymro, London; M.D., Lancs; Analyst, London; Secretary, Cardiff; B.A., Ludlow; Hygiene, London; Companion, Cheshire; X. Y. Z., London; Gordon, Aldershot; Syntax, London; Labor, London; Mica, London; Medicus, Citherce; M.R.C.S., Reading; J. H. P., Southend-on-Sea; Locum Tenens, Leeds; R. J. M., Sussex; E. R., Eastbourne; M.D., Herne Bay; S. L. H., London; M.A., London; D. A., London; W., Forest Gate; Medicus, Chester; Secretary, Royal Infirmary, Hull; Andax, London; Medicus, Margate; J. E. O'M.; J. T. W., Halifax; F. F. P., London; R. G. B., London; Ambidexter, London; Omega, Southport; Faithful, London; Dr. J. N. B., Glasgow; Medicus, Stranraer, N.B.; W. H. C., Ashford.

NEWSPAPERS.—*Blackpool Times, Nature, Bolton Evening News, West Sussex Gazette, Leicester Journal, Manchester Guardian, Kentish Observer, Liverpool Daily Post, Leeds Mercury, Bristol Mercury, South Wales Daily News, Yorkshire Post, Irish Times, Dundee Advertiser, Scottish Leader, Scotsman, The Newspaper, Sheffield Daily Telegraph, Reading Mercury, West Middlesex Standard, City Press, Insurance Record, Mining Journal, Local Government Chronicle, Windsor and Eton Express, Hertfordshire Mercury, Weekly Free Press and Aberdeen Herald, Sunday Times, Builder, Broad Arrow, Chemist and Druggist, Windsor and Eton Gazette, Metropolitan, Law Journal, West Middlesex Advertiser, Surrey Advertiser, Pharmaceutical Journal, Architect, Spectator, Pullen's Kent Argus, Halifax Free Press, Poole Herald, Maidstone Journal, Tiverton Gazette, Pioneer (Allahabad), Oswestry Observer, Belfast Morning News, Oban Times, Indian Daily Mail, Loughborough Herald, Halifax Guardian, Western Mail, Beverley Echo, Bath Chronicle, Derby Mercury, Salopian Post, Kingston Express, Manx Sun, Coventry Herald, South Bucks Standard, Nottingham Daily Express, Portsmouth Mail, Taunton Courier, Rochdale Observer, The Therapist, Insurance Post, Nurses' Journal, Inverness Chronicle, &c.*, have been received.

SUBSCRIPTION.

POST FREE TO ANY PART OF THE UNITED KINGDOM.

One Year	£1 12 6	Six Months	£0 16 3
TO CHINA AND INDIA		One Year	1 16 10
TO THE CONTINENT, COLONIES, AND UNITED STATES		Ditto	1 14 8

Post Office Orders and Cheques should be addressed to The Publisher, THE LANCET Office, 423, Strand, London, and crossed "London and Westminster Bank, St. James's-square."

ADVERTISING.

Books and Publications (seven lines and under)	£0 5 0
Official and General Announcements	0 5 0
Trade and Miscellaneous Advertisements	0 4 6
Every additional Line	0 0 6
Front Page	per Line 0 1 0
Quarter Page	1 10 0
Half a Page	2 15 0
An Entire Page	5 5 0

The Publisher cannot hold himself responsible for the return of testimonials &c. sent to the office in reply to advertisements; copies only should be forwarded.

NOTICE.—Advertisers are requested to observe that it is contrary to the Postal Regulations to receive at Post Offices letters addressed to initials only.

An original and novel feature of "THE LANCET General Advertiser" is a special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice, but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to Advertisements appearing in THE LANCET.

Terms for Serial Insertions may be obtained of the Publisher, to whom all letters relating to Advertisements or Subscriptions should be addressed.

Advertisements are now received at all Messrs. W. H. Smith and Son's Railway Bookstalls throughout the United Kingdom and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 61, Rue Caumartin, Paris.